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MAJOR CROP PROGRESS AND WEATHER REPORTING

READINESS, ORGANIZATION CHARACTERIZE BELORUSSIAN SPRING PLANTING

Minsk SEL'SKAYA GAZETA in Russian 20 Mar 82 pp 1,3

[Article: "Good Readiness and Organization for Spring Planting"]

[Excerpts] The kolkhozes and sovkhozes of the republic are beginning spring planting--one of the most important stages in the struggle for a good crop and for successful implementation of the decisions of the 26th CPSU Congress and the instructions of Comrade L. I. Brezhnev concerning questions of further developing the agrarian sector of the socialist economy.

The front of spring field work is expanding each day. The southern rayons are already top-dressing the winter crops and perennial grasses and applying organic mineral fertilizers to the spring crops. In the next few days this work will spread to all zones of the republic.

The condition of the soil, the availability of supplies of moisture and nutritive substances in it and the meteorological situation are not the same in the various zones of the republic. There are essential differences in the situations on the fields within the rayons and also on the farms. This requires that the agronomical service take a differentiated approach to each field and utilize creatively and efficiently the material, technical and labor resources, depending on the situation that has arisen.

The soil is now drying out intensively. It is very important to establish daily control over the condition of the fields and not to allow delays in beginning the work. Under the existing conditions a most important device should be selective preparation of the soil so that planting can begin without delay as soon as the necessary conditions exist.

Peat bogs require special attention. In order not to allow the best time periods for planting grain crops on them to pass it is necessary to begin this in "chunks" as soon as the peat bogs have thawed to a depth of no more than 10 centimeters. In the central and northeastern part of the republic this condition of the peat soil will appear in the next two or three days.

The most important factor in increasing the fertility of the soil and the productivity of the agricultural crops is organic fertilizer. This year it is important to increase the return from them because the supply of mineral fertilizers have not increased. It is planned to apply 60.3 million tons of organic fertilizers to the area planted in spring crops this year. As of 18 March 50.9 million tons of compost--84.4 percent of the assignment--had been delivered to the fields.

In the republic as a whole 15.7 tons of compost have been accumulated for each hectare planted in spring crops. In Brestskaya Oblast this figure is 18.8 tons, Minskaya--17.4 and Gomel'skaya--16.9 tons. In Gantsevichskiy, Berezovskiy, Dokshitskiy, Svetlogorskiy, Khoynikskiy, Kletskiy, Starodorozhskiy and Vobruyskiy Rayons they have prepared and shipped on to the fields 20-24 tons of organic fertilizer per hectare planted in spring crops.

The task consists in making sure that all of the existing organic fertilizers are delivered to the fields in the shortest possible period of time. It is expedient to apply liquid manure to early spring grain crops and also to perennial grasses. The optimal doses for the application of average and good quality litter manure and compost to row crops is 40-60 tons, and barley planted after stubble predecessors--20-30 tons.

As in past years, the application of fertilizers is the biggest bottleneck in the planting conveyor of the majority of kolkhozes and sovkhozes. There is one solution here: to insure maximum productivity of the technical equipment. It is necessary to arrange things so that the daily output from each loader is in increased to 350-400 tons, and each distributor--to 100-120 tons. The operation of the technical equipment for applying mineral fertilizers must proceed on two shifts, throughout the daylight hours. Daily assignments must be established and socialist competition for fulfillment and overfulfillment of these must be organized for each crew. The work for applying fertilizers should be conducted comprehensively and the organic fertilizers should be plowed into the soil as soon as possible. Mineral fertilizers must be applied along with the plowing in of organic fertilizers, which reduces expenditures on cultivation of the soil and increases their return during the first year when they are used.

Farm specialists must again refine plans for the application of all kinds of fertilizers on the various fields of the crop rotations and the various crops, and make the necessary calculations regarding providing transportation and loading machines for their application, distributors and other technical equipment. Those farms which are already applying organic fertilizers are acting correctly.

As usual, increasing grain production is the major task. It is now important to carefully examine each hectare of winter crops, and to top-dress and harrow them (the peculiarities of caring for winter crops were outlined in SEL'SKAYA GAZETA of 19 March). The planting of spring grain crops must be carried out on each field, at a high agrotechnical level.

Special attention should be devoted to producing seeds of pulse crops--lupine, peas, vetch and maple peas. Many farms do not enough seeds of these crops. Therefore a maximum quantity of conditioned seeds of the best strains of lupine, peas, vetch and other crops should be used for planting for grain, having created on the seed sections the entire complex of organizational and technological measures for raising them. Each kolkhoz and sovkhoz must plant enough seed sections to provide enough seeds of pulse crops to fully satisfy their own needs. Pulse crops should be planted with such supporting crops as mustard, spring wheat and oats. Before planting it is mandatory to treat the seeds with rhizotorphine.

The major task in feed production is to carry out a complex of organizational and technical measures that guarantee a sharp increase in the productivity of feed crops on plowed land as well as planted and natural grasses, and increased output of seed units, digestible protein and dry substance from each hectare of feed land.

To this end it is first of all necessary for each kolkhoz and sovkhoz, beginning in the early spring, to ensure highly productive work of mechanized teams for caring for the planted and natural grasses, and also for planting feed crops, extensively using progressive technology for raising them.

One of the primary tasks is prompt preparation for and high-quality conducting of all work related to caring for pastures as well as their top-dressing with mineral fertilizers.

It is important to expand the areas planted in pulse crops, primarily clover and alfalfa, in order to solve the feed problem successfully and increase the production of vegetable protein. Each farm should be concerned about planting their seed plants. It is necessary to use each kilogram of seeds of these plants thriftily, taking into account the recommendations of the Belorussian Scientific Research Institute of Farming, and to use norms for planting clover that have been reduced to 8-10 kilograms on sections that have been well prepared and cleared of weeds. In the next few years the proportion of pulse crops of these mixtures on the areas planted in grasses should be increased to 75-80 percent.

This year many of the kolkhozes and sovkhozes of the republic are considerably increasing the areas planted in corn. The experience of the leading farms and the data from scientific research show that the greatest effect is achieved when it is planted with hybridized seeds at early time periods along with grain crops, observing the optimal planting norms. The optimal time for hybridization is right now. It is necessary to include all points for processing seeds in the work in order to complete it before the beginning of planting.

As in past years, it is necessary to take all measures to ensure increased production of potatoes, devoting more attention to high-quality of seed material, observance of the density and time periods for planting, and also comprehensive protection of the plants from pests, diseases and weeds.

Industrial technology for raising sugar beets should be introduced more extensively. When they are cultivated primary attention should be devoted to good treatment of the soil with organic and mineral fertilizers, high-quality cultivation and leveling of the areas, and the formation of a density that provides for 90,000-100,000 tubers per hectare by harvest time.

Prompt and high-quality performance of the complex of spring field work this year will make it possible to create a real basis for achieving new and higher goals and to obtain from each hectare 26-27 quintals of grain crops, 175-185 quintals of potatoes, 265-275 quintals of sugar beets, 5.3 quintals of flax fiber and 160-170 quintals of vegetables, as is envisioned by the socialist commitments for 1982.

The primary duty of the party organizations of the kolkhozes and sovkhozes as well as all rural communists is to lead the fight of rural workers for exemplary spring planting in each brigade, on each kolkhoz and sovkhoz, on each field, and thus to create a firm basis for a large yield in the second year of the five-year plan--the year of the 60th anniversary of the formation of the USSR.

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CSO: 1824/314

MAJOR CROP PROGRESS AND WEATHER REPORTING

SCIENTIFIC RECOMMENDATIONS FOR TENDING WINTER CROPS

Moscow SEL'SKAYA ZHIZN' in Russian 19 Mar 82 p 3

[Article by V. P. Samsonov, director of Belorussian Scientific Research Institute of Farming, G. V. Vasilyuk, deputy director of Belorussian Scientific Research Institute of Soil Science and Agrochemistry, and V. A. Gerasimovich, deputy chief of the main farming administration of the Belorussian SSR Ministry of Agriculture: "Peculiarities of Tending Winter Crops"]

[Text] Last year's unusually warm and rainy autumn led to intensive development and over growing of winter crops on the fields of the republic. On a considerable part of the planted areas the soil did not freeze through under the deep snow, the vital processes continued in the plants during the winter, and nutritional elements were expended, which in many cases led to a severe weakening of the areas planted in rye and wheat. Therefore there is a greater probability that the plants will die 5-6 days before the snow disappears.

An analysis conducted of the sugar content in the plants of winter crops on a number of kolkhozes and sovkhozes of Pruzhanskiy, Shchuchinskiy, Mogilevskiy, Shklovskiy and Minskiy Rayons showed that the areas planted in winter rye during August have up to 10 percent sugar. The probability of their exhaustion taking into account the development of this year's spring processes is great, and it means that there is a possibility of considerable thinning and death of the plants during the early spring, especially if the cold weather returns and snow falls on the weakened planted areas.

Taking this into account, the agrochemical services of the kolkhozes and sovkhozes and the agricultural administrations of the rayispolkoms must organize careful control over the condition of the winter crops and the intensiveness of the expenditure of sugars in them, which is determined by the methods outlined in the book "Methods of Biochemical Examination of Plants" (Leningrad, Izd. "Kolos", 1972), and also the book by A. V. Peterburgskiy, "The Practice of Agronomical Chemistry" (Moscow, "Kolos", 1968).

As a rule, exhausted winter crops are significantly infested with snow mold. This disease is especially harmful in the northern and eastern regions of Vitebskaya, Grodnenskaya, Minskaya and Mogilevskaya Oblasts. During the years of severe development of snow mold the thinning of the areas planted in winter rye can reach 30-50 percent, and it is also possible for all the plants to die.

The conditions for the thinning and death of winter crops from snow mold appear most frequently on farms with slight contours of the fields on planted areas that are surrounded by forests and on lower areas where the snow is higher and stays longer as well as on soil with a cohesive texture which is subject to temporary excessive moisture when the temperature is 0-+1 degrees.

Prolonged melting of the snow and cold weather with frequent fog and precipitation in the form of wet snow contribute to further development of snow mold. Because of these conditions the situation with the condition of the winter crops can change each day. Therefore it is necessary to contain constant supervision of the fields from which the snow has disappeared.

This year the conditions under which the planted areas withstood the winter were unfavorable in a number of rayons of Vitebskaya (Polotskiy, Postavskiy, Gorodokskiy, Lepel'skiy, Dokshitskiy), Minskaya (Minskiy, Vileyskiy, Borisovskiy, Volozhinskiy) and Grodnenskaya (Oshmyanskiy, Novogrudskiy, Korelichskiy, Lidskiy) Oblasts. Here for more than 80 days there was a snow cover 25-30 centimeters deep, and in places--40-55 centimeters. Most of the soil was frozen to a depth of 10 centimeters. The temperature at the depth of the tillering node was from 0 to -3 degrees. An evaluation of the condition of winter crops from various samples showed increased disease in planted areas in a number of rayons, primarily in Vitebskaya and Grodnenskaya Oblasts.

But what measures can reduce or completely neutralize the unfavorable conditions for wintering? On areas planted in winter crops when there is a deep snow cover and also a crust of ice it is necessary to accelerate melting by spreading peat crumbs over the surface (approximately 2-3 tons per hectare) or by using potassium fertilizers (1-2 quintals per hectare), especially if not enough of them have been applied in the autumn. The peak crumbs in the potassium fertilizers should be spread over the fields during the early morning hours on the thin crust of ice over the snow so as not to harm the winter crops. The possible flow of surface waters should also be diverted.

It is necessary to use this device in places where a good deal of snow has accumulated and it is not melting quickly--along protective roadside planted areas, the edges of forests and in low areas.

It is now very important to remove more rapidly the dead plants that are on the fields planted in winter crops. To do this, as the snow disappears, the winter crops on slightly frozen soil are harrowed during the early morning hours. This way one can damage or completely destroy the sources of infection with snow mold, the field warms up and dries out more rapidly, the planted areas are perforated and growth begins more actively. It is best to do this with chain harrows, but if the farm has none of these ordinary harrows will do. But this work can be done only if the upper layer of the soil is frozen. As soon as it begins to thaw the soil becomes soft and the harrowing should be stopped. In this case, as distinct from past years, nitrogen top-dressing should be applied after harrowing, which makes it possible to utilize the nitrogen more effectively. This is precisely what is done on the kolkhozes and sovkhozes of the southern rayons of Grodnenskaya Oblast whose fields have been cleared of snow.

One of the basic and most important measures for caring for winter crops is prompt and high-quality top-dressing of them with nitrogen fertilizers. On soddy podzolic soil, when the plants are completely provided with phosphorous and potassium, the nitrogen fertilizers determine the size and the quality of the yield. All planted areas without exception should be top-dressed with nitrogen this year.

Research of the Belorussian Scientific Research Institute of Farming and the Belorussian Scientific Research Institute of Soil Science and Agrochemistry has established that when winter crops are planted after pulse crops and row crops with the application of organic fertilizers, the optimal dose for winter rye is 60 kilograms and for winter wheat, 70-80 kilograms per hectare of planted area. When winter crops are planted after grain predecessors it is recommended that 60-80 kilograms of nitrogen be applied to winter rye and 80-90 kilograms per hectare to winter wheat. It is expedient to apply this quantity of nitrogen fertilizers in the spring in one application, and larger doses--in two applications: early in the spring--60 kilograms, and the rest--during the stem extension phase.

The effectiveness of top-dressing areas planted in winter crops is very great. Thus, according to data from experiments of scientific research institutions of the republic, the return from one kilogram of nitrogen in their yield of grain of winter rye is 9-10 kilograms, and winter wheat--14-18 kilograms. A high return from nitrogen fertilizers used to top-dress winter crops is annually attained by the Kolkhoz imeni Kirov in Shklovskiy Rayon, the Zarya kommunizma in Ivanovskiy Rayon, the Progress in Grodnenskiy Rayon, the Svetlyy Put' in Molodechnenskiy Rayon and the Novaya zhizn' in Zhitkovichskiy Rayon. It should be noted that on these farms all work for tending winter crops is done comprehensively, at the optimal time periods, and with strict observance of technological conditions.

Spring top-dressing should be started when the plants begin to grow (the appearance of white buds) and should be ended within 10-15 days.

The effectiveness of top-dressing is determined largely by the uniformity of the application of nitrogen fertilizers. Therefore it is necessary to use RTT-4.2 fertilizer spreaders with maximum productivity. If there is a shortage or complete lack of them one can obtain a good effect by using grain seeders with the plowshares removed and seed spreaders attached. Agronomists and engineers of the kolkhozes and sovkhozes, the Sel'khozkhimiya service and the agricultural administrations of the rayispolkoms should first of all provide for a strict control over uniform application of fertilizers with machines with centrifugal spreaders and aircraft, since a lack of uniformity leads to a significant reduction of the yield and reduces the return from the fertilizers. The quality of the application of fertilizers with aircraft depends to a significant degree on efficient organization on ground signalization and also the necessary altitude of flights when there is a wind of more than 4 meters per second as well as on the dimensions of the fields.

It is now necessary to carefully check on the repair of all components of mechanisms and adjust them for high-quality application of fertilizers, to register the results of the adjustment (the position of the controlling devices, the breadth of spreading, the necessary covering of the strips and the optimal distance between passes) in a special document, to strictly supervise in the field the degree to which the actual condition of the machine corresponds to the data obtained after adjustment.

As was shown by data obtained from field experiments of the scientific research institutes of the republic, ammonium nitrate is the most effective for top-dressing winter plants. On limed and slightly acid soil ammonium sulfate is as valuable as ammonium nitrate. When top-dressing winter grain crops it is mostly expedient to use ammonium nitrate and ammonium sulfate which, with a relatively low concentration of nitrogen, make it possible to distribute the fertilizers more uniformly throughout the area and provide for minimum losses of nitrogen and the greatest additional yield. When there is a shortage of ammonium nitrate or ammonium sulfate, for top-dressing winter grain crops on more cohesive soil it is possible to apply urea, for grain crops with disc seeders creating grooves in the soil or on the surface of the fields with subsequent harrowing into the soil. Spring harrowing of the planted areas is one of the agrotechnical devices for tending winter crops.

In order to avoid the formation of cracks and to bring the moisture up to the plants on peaty soil, the areas planted in winter crops are rolled with bog rollers.

This year, with the great density of the areas planted in winter crops, lodging is quite possible. Therefore, in addition to agrotechnical devices for increasing the resistance of the planted areas to lodging, it is extremely effective to apply growth inhibitors everywhere--campozan and TUR. The five-year research of the Belorussian Scientific Research Institute of Farming has established that when the areas planted in winter rye are treated with this at the beginning of the phase of stem extension the retardant campozan in a dose of 4 liters per hectare increases productivity by from 3.5 to 9.4 quintals per hectare.

Using a mixture of TUR in the amount of 3 kilograms per hectare and 0.5 kilograms per hectare of campozan in active substance on areas planted in winter rye has proved highly effective. On an average for 3 years the rye treated with this mixture produced an additional yield of grain of 4.1 quintals per hectare, and with pure campozan--4.2 quintals per hectare. Since the effectiveness of the mixture of TUR plus campozan was practically the same as that of pure campozan and their costs are different, the savings from applying the mixture amounts to 7-8 rubles per hectare.

In order to increase the resistance of winter wheat to lodging and to fight against weeds it is recommended that a mixture of TUR and a systemic herbicide be applied to the planted areas in the tillering phase in the following doses: 4 kilograms per hectare of active substance of TUR plus one-half the optimal dose of herbicide. The effectiveness of the application of this mixture is the same as that of each one individually in pure form, but with the mixture it is possible to reduce expenditures on cultivation and herbicides by half. Treating the areas planted in rye with campozan and winter wheat with TUR makes it possible to apply increased doses of fertilizers (nitrogen--up to 120 kilograms per hectare) without fear of lodging and to obtain high yields of grain. In places where retardants are applied and the planted areas have not lodged the combines operate more productively.

The agrochemical services of the kolkhozes, sovkhozes and agricultural administrations of the rayispolkoms should make specific decisions on the spot, keeping in mind the existing situation and condition of the areas planted in winter crops. A large yield from these crops can be assured only with the fulfillment of a complete complex of measures under the specific conditions of each farm.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

BELORUSSIAN FARMERS PREPARING FOR SPRING FIELD WORK

Moscow IZVESTIYA in Russian 3 Apr 82 p 1

[Article by N. Matukovskiy (Belorussian SSR): "The Creativity of Machine Operators"]

[Text] Belorussian farmers will have to do an immense amount of work this spring. It is necessary to care for 1.4 million hectares of winter crops and to plant almost 2 million hectares in grain and pulse crops, 230,000 hectares in flax, 52,700 hectares in sugar beets, 44,000 hectares in buckwheat and 370,000 hectares in potatoes. The total area planted in spring crops will amount to 3.2 million hectares.

The grain growers plowed the fallow last autumn, not leaving a single hectare for spring plowing. More than 50 million tons of organic fertilizers have already been brought out onto the fields. Another 10 million tons will be delivered. As a result, the farmers will apply almost 2 million tons more organic fertilizers than they did last year to the spring crops and potatoes.

An indispensable condition for a good crop is high-quality seeds. Ninety-five percent of the planting material in the republic is of the first and second classes, and it has a high biological potential.

There will be 124,500 tractors working in spring planting this year, which is 2,500 more than last year. And two-thirds of these 2,500 additional, as it were, tractors are high-powered ones. Usually when one begins to speak about such technical equipment there is a simultaneous discussion about the shortage of trailer devices for them. But here the skillful kolkhoz workers have begun to take care of this matter themselves.

The practice of the Gomel'skaya workers is instructive here. Last year only individual farms could apply it while this year it is being applied in all of the oblasts of the republic. What is its essence? On the 1 Maya Kolkhoz in Rogachevskiy Rayon in Gomel'skaya Oblast four K-700 tractors and seven T-150K tractors were equipped with a full set of agricultural machines which they developed themselves. For example, they extensively use the overhead plowing cultivator which has been expanded to 6-8 meters with adaptors for harrowing and leveling the soil. Many farms of Gomel'skiy, Buda-Koshelevskiy and other rayons are using planting aggregates devised out of a caterpillar tractor--the T-74 (DT-75) bulldozer and three seeders. The design makes it possible to reduce the turning radius 3-fold as compared to series produced trailer equipment. Using this technical equipment it is possible to seed up to 60 hectares during a shift and thus release two or even three MTZ-50 tractors that were previously used for planting.

Calculations show that the technical equipment makes it possible to conduct the planting of early grain crops in the republic in 5-6 working days, flax and sugar beets--in 3-4 days, and potatoes--in 8-10 days. There will be 2,936 comprehensively mechanized detachments working on the planting. Each has its own individual plan.

The republic measures ahead of time to make sure that the soil cultivation equipment operated on two shifts and the rest of it throughout the daylight hours. About 40,000 machine operators will be employed in the planting work. Many of them are now completing training in courses. It should be noted that the training of personnel is now considerably better than it has been in past years.

A special program has been drawn up for feed production. It is intended, for example, to expand the areas planted in pulse grasses, primarily clover and alfalfa. The areas planted in lupine and vetch will also be increased.

Agricultural workers of Belorussia are beginning the campaign for the 1982 harvest in a state of complete militant readiness. They know that true mastery helps to overcome the caprices of nature.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

HARD WORK DEVOTED TO BELORUSSIAN SPRING PLANTING

Minsk SEL'SKAYA GAZETA in Russian 8 Apr 82 p 2

[Article: "Hard Labor for Spring Planting"]

[Excerpts] The kolkhozes and sovkhozes of the republic have entered the most responsible stage in the campaign for the crop--spring planting. Each day, each hour the front of the field work expands. The rapid drying of the soil and the shortage of moisture in a number of places, especially on soil with light texture, places rigid conditions for conducting the spring planting campaign. The planting of spring crops should be carried out in optimal, extremely short time periods. In the southwestern rayons and some of the central rayons of the republic they have already begun it, and the majority of rayons will begin it in the next few days. In this situation, maximum exertion of effort, good organization and planning, and skillful maneuvering of material-technical and labor resources are expected of all party, soviet and agricultural agencies, managers and specialists of the farms, and all rural workers.

The field work is being conducted in an organized way with the necessary rhythm on the many farms of Brestskaya, Grodnenskaya and Gomel'skaya Oblasts.

Field work is being done at high rates and with good quality by the farms of Stolinskiy, Luninetskiy, Ivatsevicheskiy, Ivanovskiy, Mozyrskiy, Grodnenskiy and a number of other rayons where they have planted from 26 to 35 percent of the spring grain crops and are carefully tending the winter and feed crops. Aircraft are working efficiently to apply fertilizers.

On the other hand, since the first days of spring planting there has been unjustified delay in a number of places. They have not arranged systematic observance of the ripening of the soil and they are allowing the time periods for top-dressing winter crops, perennial grasses, hayfields and pastures to pass. The work for applying organic and mineral fertilizers to the soil and plowing them in and top-dressing winter crops, grasses, hayfields and pastures as well as preplanting cultivation of the soil are not organized propertly even though there is every opportunity to do this. The top-dressing of winter crops and perennial grasses is being delayed in Borisovskiy, Dzerzhinskiy, Uzdenskiy, Dubrovenskiy, Shumilinskiy, Rossonskiy, Kirovskiy, Klimovicheskiy, Kostyukovichskiy and a number of other rayons.

Questions of applying organic fertilizers require special attention. In Minskaya and Mogilevskaya Oblasts less than 20 percent of this work is being done and in Vitebskaya even less. The main reason for the delay lies primarily in the poor utilization of loading and transportation equipment and the lack of the proper supervision of the work on the part of agronomists and engineers of the kolkhozes and sovkhozes. A number of associations of Sel'khozkhimiya render poor assistance to the farms in the application of mineral and organic fertilizers.

The managers and specialists of many farms have not given the proper amount of thought to questions of placement of personnel and staffing technical equipment with machine operators for work on two shifts. A large number of tractors stand idle for various technical and organizational reasons. They have not arranged the proper technical servicing for machines and mechanisms. Operational measures are not taken everywhere for dealing with components and sets of equipment that are not functioning. There are cases where unprepared technical equipment is sent out into the field and the sets of planting and soil cultivation equipment are not properly adjusted. Aircraft are not being utilized in the best way for top-dressing winter crops, meadows and pastures.

These and other shortcomings in spring planting are the result of the fact that questions of prompt and high-quality field work have not been the subject of special concern and daily supervision on the part of individual party gorkoms and raykoms, rayispolkoms and agricultural agencies.

It is the duty of party organizations and managers and specialists of kolkhozes and sovkhozes to delve deeply into these shortcomings and eliminate them at the beginning of planting, to eliminate the possibility of their causing harm, and to give maximum attention and concern to this year's harvest. It is necessary to reduce the time periods for conducting spring field work as much as possible, to improve the quality of the planting, and to organize things in such a way that all technical equipment operates during all daylight hours with a maximum load.

The agronomical and engineering services of the kolkhozes and sovkhozes should establish special supervision over the adjustment of the machines for a particular technology. All planting work on the farms should be approved by specalists daily and quality standards should be introduced everywhere. All farms should establish careful observance of the degree of readiness of the soil on each field and on each section so that the field work can begin as soon as possible. It is necessary to have more efficient organization of the operation of technical equipment for applying organic fertilizers, and they should be plowed into the soil immediately after they are distributed. In the next few days one should complete an inventory of winter crops, perennial grasses and cruciferous crops, and take necessary measures to care for them so as to obtain a maximum yield.

It is necessary to ensure the constant readiness and highly productive utilization of the machine and tractor fleet, to provide on the spot technical servicing for each planting aggregate, and to immediately deliver fuel and lubricants and use them on the machines right in the fields. Proper conditions should be created for the labor and recreation of the machine operators and other workers who are employed in planting and hot food should be provided for them on each farm.

In order to increase the rates of field work it is necessary to utilize the capacities of high-powered tractors more fully and to use wide-grasp and combined sets of equipment as much as possible.

Each day each kolkhoz and sovkhoz should sum up the results of the work of the brigades, teams, crews and individual machine operators, encourage people orally and materially, and extensively disseminate progressive devices and the work methods of the advanced workers. Today's record for one farm is tomorrow's norm for all--such should be the motto for competition during planting.

The situation on the fields of the republic changes each day. It is necessary to create the proper labor attitude everywhere, to utilize each tractor and set of planting and soil cultivation equipment with the greatest efficiency, to reduce the time periods for planting work, to improve the quality of this work and to step up the rates of planting.

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CSO: 1824/314

MAJOR CROP PROGRESS AND WEATHER REPORTING

PECULIARITIES OF SPRING WEATHER CONDITIONS

Minsk SEL'SKAYA ZHIZN' in Russian 4 Apr 82 p 2

[Article by L. Pyatovskaya, senior engineer-agrometeorologist of the Minsk weather bureau: "Taking the Peculiarities of This Spring Into Account"]

[Text] This spring, like the spring of 1959, is distinguished not only by relatively early and sluggist development, but also by a significant shortage of precipitation (the shortage of precipitation in March amounted to 50-80 percent). Moreover, in a number of rayons, especially the southern ones, the shortage of precipitation as compared to the norm has existed since winter. Naturally, many farmers are concerned about this. This is why this year it is especially necessary to protect and retain the moisture in the soil and utilize it more fully.

In certain rayons of Gomel'skaya Oblast, mainly the southern ones that are adjacent to the Ukraine, cohesive and loose sands that are covered over with more sand are already beginning to dry out. The supplies of useful moisture in the soil are about 15 millimeters, and at 1 meter deep--about 60 millimeters. This soil is most widespread on a large part of Lel'chitskiy, Yel'skiy, Narovlyanskiy, Khoynikskiy, Braginskiy and Rogachevskiy Rayons, and also in the east of Loyevskiy and the south of Gomel'skiy Rayon. One should take into account that in the next few days, according to the weather forecast, no precipiation is expected. Until 5 April there will be a field of increased atmospheric pressure which is brought about by the shift of the anticyclone from Central Europe to the regions of Moldavia. The temperature during the night and the morning hours is expected to be from 1 degree below 0 to 3 degrees above 0, and during the day--7-12 degrees above 0, and in Brestskaya and Grodnenskaya--up to +15 degrees centigrade.

Unstable weather is expected during the period from 5 through 7 April. This will be the result of the shift of cyclones from Scandinavia to the central regions of the European part of the country, and rains will pass through the territory of the republic. The probability of precipitation is less in Brestskaya and Grodnenskaya Oblasts.

According to the monthly weather forecast, in the first half of April there will be a possible rise in the air temperatures to +12-17 degrees centigrade. The quality of precipitation in April is expected to be close to normal. Because of this nature of the expected weather there can be a further reduction in the supplies of productive moisture, which will be especially significant on light textured soils of the southern part of the republic which are covered over with sand. This means that planting should be conducted in the shortest possible periods of time. Thus this year the optimal times for mass planting of early spring crops are 10-15 April in the southern part of the republic and 15-20 April in the northern part; the optimal times for mass planting of potatoes in the southern half of the republic is 20-25 April, and in the northern part--the last 5 days of April.

One must recall that the planting times determine the amount of the future yield by approximately 40-50 percent. Thus a 5-day delay in planting barley as compared to the optimal time period can lead to a reduction of the yield of approximately 5-10 quintals per hectare, and delay in planting potatoes--approximately 30-50 quintals.

Another important task under the difficult conditions of this spring is prompt provision of animal husbandry with green feeds. Prompt grazing of livestock on pastures with hay grasses in the republic should be a great help here. On the basis of our calculations, this year the optimal conditions for the beginning of grazing of livestock on pastures with hay grasses, with a coefficient of utilization of 30-50 percent (growth of the grasses to 5 centimeters) in the southern part of the republic is 5-15 April and in the northern part--the fourth 5-day period of April. The suggested optimal time period for grazing cattle on pastures with a full load (the grass having grown to 10 centimeters) in the south of the republic is 21-25 April, and in the rest of the territory--the last 5-day period of April.

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MAJOR CROP PROGRESS AND WEATHER REPORTING

WEATHER CONDITIONS FAVORABLE FOR GRAIN CROPS

Minsk SEL'SKAYA GAZETA in Russian 27 Apr 82 p 1

[Article: "Time Hurries Grain Growers"]

[Excerpts] Optimal times for planting agricultural crops largely determine the fate of the future harvest. After a brief cool spell, favorable conditions for mass development of planting work have appeared throughout practically all of the republic.

The planting of barley, oats, spring wheat and pulse crops has been completed in Stolinskiy, Maloritskiy, Luninetskiy, Mozyrskiy, Petrikovskiy, Khoynikskiy, Volkovysskiy, Grodnenskiy, Svoslochkiy and Shchuchinskiy Rayons. Field work is being done at rapid rates in Dokshitskiy, Chashnikskiy, Lyubanskiy, Starodorozhskiy, Glusskiy and Bykhovskiy Rayons.

While giving a positive evaluation to the work of the majority of kolkhozes and sovkhozes in the republic it is necessary to note that there are quite a few cases where the organization and rates of work in planting do not correspond to the existing situation. Actually the optimal times for planting spring grain and pulse crops for all rayons of the republic are coming to an end. Unfortunately there are farms which are just beginning planting. There is a lack of organization and delay in conducting planting on the farms of Sharkovshchinskiy, Verkhnedvinskiy, Pukhovichskiy, Logoyskiy, Shklovskiy, Mstislavskiy and a number of other rayons.

Two-shift operation of sets of tractor and planting equipment has not been organized everywhere, and they are not even used throughout all the daylight hours. Cases like this are typical of many farms of Baranovichskiy and a whole number of other rayons.

As a result, recently the daily increase in the areas planting in spring grain crops has not exceeded 7 percent in Minskaya Oblast, 4 percent in Mogilevskaya Oblast and 3.5 percent in Vitebskaya Oblast.

Certain farms are lacking an efficient and strict system of control over the quality of the application of fertilizers, the cultivation of the soil and the planting, and there are frequent violations of agrotechnology. The place of the specialists now is with the machines and sets of machines that are operating in the field, where the basis of the future harvest is being formed. The quantity of field work on each field should be the main criterion for evaluating the work of each specialist.

At the present time special attention should be devoted to increasing the rates of application of organic fertilizers, preparation of the soil, and completion of the planting of spring grain and pulse crops. Many rayons are planting flax, sugar beets, vegetables and potatoes. Each farm needs a differentiated, agronomically substantiated approach to the determination of the optimal time period for planting on each field and for each crop.

The most serious attention should be devoted to the cultivation of pulse crops. The republic has the opportunity of treating all areas planted in grain with rhizotorphene. Yet it has been established that in many rayons of Mogilevskaya Oblast, despite the fact that on 9 April of this year in SEL'SKAYA GAZETA there was an article entitled "Applied Bacterial Fertilizers" and there have also been speeches from scientists and practioners on the radio and television, certain farm managers have not become aware of the advantage of rhizotorphene, and are not ordering it or applying it. The chairman of the Zavety Il'icha Kolkhoz in Krichevskiy Rayon, N. Oberemko, was completely unaware of the purpose of bacterial fertilizers.

The importance of bacterial fertilizers is underestimated in Rogachevskiy, Svetlogorskiy, Stolbtsovskiy, Slutskiy and several other rayons, where not all of the seeds of legume crops are properly treated. There is no justification for this. One must remember that rhizotorphene not only increases the productivity of these crops and increases their protein content, but also increases the fertility of the soil as a result of the accumulation of nitrogen. Leguminous grasses (clover, alfalfa) during the year assimilate from the air and accumulate 150-200 kilograms of nitrogen per hectare, and annual leguminous crops accumulate 50-60 kilograms of nitrogen per hectare. This is why such a reserve as bacterial fertilizer should be placed in the service of the crop on each farm.

The tending of winter crops should be completed in the next few days. And although the indicator of their perishing was lower than the average indicator for many years, one should, where necessary, complete the replanting of these areas with spring crops. It must become a firm rule for each farm that the areas from which grain crops are harvested are no less than the areas on which they are planted.

This year it is necessary to do everything possible to create a solid feed base. To do this it is necessary to finish tending perennial grasses and top-dressing them, and this also applies to hayfields and pastures. A good deal of land like this in Vitebskaya and Mogilevskaya Oblasts requires immediate care. In addition to planting grain crops it is also necessary to plant perennial grasses. In the republic as a whole one-third of the perennial grasses have been planted. There are arrears in this work in the majority of rayons of Minskaya, Vitebskaya and Mogilevskaya Oblasts.

Optimal time periods for planting potatoes have arrived everywhere in the republic. It is necessary to accelerate the preparation of the planting material.

An extremely inadequate amount of potatoes have been sorted on the farms of Mstislavskiy, Krichevskiy, Klimovichskiy, Dubrovenskiy, Glubokskiy and Verkhnedvinskiy Rayons. It is necessary to use the sorting points on the farms more extensively in this work.

Planting work is becoming more and more widespread. The main task now consists in reducing the time periods for all field work, improving the quality of this work, and efficiently using daylight hours, and for preparing the soil, the nighttime as well. It is a matter of honor and the patriotic duty of agricultural workers of the republic to pass this test of planting crops in a worthy way and to create a reliable basis for the fulfillment of the socialist commitments of the second year of the five-year plan.

11772
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BRIEFS

ORGANIC FERTILIZERS--Brest--Detachments and teams for preparing organic fertilizers and operating on all kolkhozes and sovkhozes of the oblast. [Text] [Moscow SEL'SKAYA ZHIZN in Russian 3 Mar 82 p 1] 11772

EARLY SPRING CROPS--Brest--The farmers of the Belorussian Poles'ye have begun planting early grain crops on peat bogs without missing the best time periods. This is being done on the layer of soil that has thawed to a shallow depth. The machine operators have been achieving a high output since the first days. The farms of Brestskaya Oblast will plant about 200,000 hectares in spring grain crops. More than two-thirds of the areas has been allocated for the crop that is most productive under local conditions--barley. The land planted in it has been limed and treated with an abundance of organic and mineral fertilizers. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 25 Mar 82 p 1] 11772

GRAIN CROPS--Farmers of Poles'ye who began planting spring crops on drained peat bogs earlier than usual, have utilized an important reserve for increasing the yield of grain crops. "The sun and wind quickly dry out the land," says the chairman of the Kolkhoz imeni Chapayev in Stolinskiy Rayon, P. V. Shevchuk. "Therefore it is now important to take measures to make sure that the moisture is retained in the soil. An early time for planting on peat bogs, when it has thawed only to a slight depth, is advantageous because of the fact that the 'shell'--as we call the frozen layer of soil--holds the vehicles well. Even a week from now it will be impossible to take technical equipment out there until the beginning of May. And when the soil has basically thawed out the optimal time period for planting spring grain crops have passed, which could lead to losses of the crop." The farms of Brestskaya Oblast will have to plant about 200,000 hectares in spring grain crops this year. More than two-thirds of the area will be planted in the crop that is most productive under local conditions--barley. The perennial grasses and winter crops are being tended everywhere. [Text] [Minsk SEL'SKAYA GAZETA in Russian 24 Mar 82 p 1] 11772

FIELD WORK--Brest--Farmers of Poles'ye are increasing the rates of field work. The kolkhozes and sovkhozes have brought more than 16,000 sets of equipment with tractors onto the fields. Most of the technical equipment is being used on two shifts. The planting of early grain crops is under way on the farms of Pinskiy, Ivanovskiy, Drogichinskiy and other rayons of Poles'ye. The kolkhozes and sovkhozes of Brestskaya Oblast have top-dressed almost a quarter of a million hectares of meadows, pastures and areas planted in perennial grasses. Harrowing and top-dressing of winter grain crops are proceeding everywhere. [Text] [Minsk SEL'SKAYA GAZETA in Russian 27 Mar 82 p 3] 11772

PLANTING PULSE CROPS--Minsk--Farmers of Belorussia have completed preparing the seeds of grain crops. All the planting material has been brought up to the highest conditions. There is enough of it not only for the spring fields, but also for possible replanting of winter crops. Preference has been given to the best strains of the intensive type. They include the nadya and favorit barley, kondor oats, leningradka and belorusskaya-12 wheat and iskra buckwheat. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Jan 82 p 1] 11772

WINTER CROPS--Farmers of Minskaya Oblast have completed the harrowing of winter crops on almost 100,000 hectares. At the same time they are treating the fields planted in winter crops, which occupy about 300,000 hectares in the oblast, with nitrogen fertilizers. "On certain farms the planted areas are exhausted," says the head agronomist of the agricultural administration of the obolispolkom, A. S. Lomsha. "Snow mold has invaded many sections. Therefore, using small tractors for harrowing, we are removing the dead residuals of stubble. We take them to the sides of the roads and burn them so as to avoid the spreading of various infections." On overmoist land where it is difficult for machines to pass they are using horses. In some places, just as during haying time, the farmers have yet to use ordinary rakes. As a result the soil dries out better and the winter crops have good access to nitrogen, which stimulates their growth. The rates of field work are increasing. All of the high-powered, high-speed equipment with wide-grasp combined aggregates are concentrated on the peat bogs, where the planting of spring crops has been started. Following the example of the Ipatovo workers, more than 500 comprehensive technological detachments have been created in the oblast. Their crews have been augmented with graduates of vocational and technical schools and patrons. Such a combination of efforts will make it possible to complete the planting of early spring grain and pulse crops in 5-6 working days. [Text] [Minsk SEL'SKAYA GAZETA in Russian 9 Apr 82 p 1] 11772

FIELD SITUATION--Gomel'skaya Oblast--Spring crops occupy 271,000 hectares in the oblast. Field work is now in full swing in all the rayons. More than 167,000 hectares of winter crops and 157,000 hectares of meadows and pastures have been top-dressed. The workers have applied 44,000 tons of mineral fertilizers and more than 4 million tons of organic fertilizers. More than 62,000 hectares of land in the oblast have been prepared for planting. The planting aggregates have gone out onto the fields of certain farms of Mozyrskiy, Petrikovskiy, Svetlogorskiy, Braginskiy and several other rayons. The seeds of early grain and pulse crops have already been placed in the soil on 16,000 hectares. Representatives of industrial enterprises and city organizations are now coming to help the farmers. The days that have passed on the farms and in the rayons have already determined the leaders and given the names of those who have distinguished themselves. They are setting the pace in the collectives. Socialist competition is gathering speed and it helps the grain growers to achieve their goals. Participants in an inspection tell of the way this is organized in Mozyrskiy Rayon. [Text] [Minsk SEL'SKAYA GAZETA in Russian 8 Apr 82 p 1] 11772

MOGILEVSKAYA DEADLINES--On the kolkhozes and sovkhozes of Mogilevskaya Oblast, as distinct from other zones of the republic, because of the peculiarities of the soil and climate conditions the calendar times for planting and other work are reduced. This requires from personnel of all teams high responsibility for efficient utilization of the machine and tractor fleet, efficient organization of labor and skillful placement of forces. Taking advantage of the favorable conditions, farmers of the southern rayons have begun planting early grain crops. The front of spring field work is expanding each day. This spring's weather conditions are such that it is necessary to take a more operational and flexible approach to maneuvering human resources and technical equipment, without waiting for complete ripening of the soil on all of the areas, but preparing it and planting it selectively. It is necessary to take the fullest possible advantage of all daylight hours and to make sure that the technical equipment is used on two shifts and in individual processes, during the night as well. The work schedule of party committees, soviet and economic agencies, and services for controlling technical servicing and supply should be made to correspond to this. A great deal of attention was devoted to completing the tending of winter crops, perennial grasses, meadows and pastures. It was pointed out that on a number of farms and in a number of rayons this work was inadmissibly prolonged. Party committees, local party organizations and all agricultural workers of Mogilevskaya Oblast have been given the task of acclerating spring field work so as not to pass the best agrotechnical times and to complete the planting of early grain and pulse crops in 50-60 hours, thereby laying a firm basis for obtaining large yields. [Exceprts] [Minsk SEL'SKAYA GAZETA in Russian 11 Apr 82 p 1] 11772

OPTIMAL TIME PERIODS--Mogilev--Planting is in full swing on the fields of the oblast. In order to accelerate the work, many farms are now using combined trailer rigging. The combination of technological operations makes it possible to reduce the number of turns of the tractor and to increase labor productivity. Preparation of the soil and planting are being done at optimal times. The farmers are exerting all efforts in order to conduct the planting work with the highest quality. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 28 Apr 82 p 1] 11772

GRODNENSKAYA FARMING--The farms of Grodnenskaya Oblast are consistently advancing the science of farming and, on this basis, achieving a steady increase in productivity, creating a stable feed base and strengthening the economy. Many kolkhozes and sovkhozes have taken the lead and from year to year are harvesting 40-50 quintals of grain and 300 quintals of potatoes per hectare as well as large yields of sugar beets and other crops. Having reduced the time periods for field work as much as possible, the farms of Volkovysskiy, Svislochskiy, Grodnenskiy, Zel'venskiy and Berestovitskiy Rayons have already completed the planting of early grain and pulse crops. In the oblast as a whole as of 23 April these crops occupied 88.1 percent of the planned area. Bastard fallow cultivation, harrowing of the areas planted in grain crops, progressive new technology for raising potatoes, corn and sugar beets, and accelerated propagation of highly productive strains of agricultural crops have become widespread. Programming the harvest is being practiced successfully. It has been pointed out that, in addition to the most rapid completion of the planting of grain and pulse crops, it is necessary to accelerate the planting of potatoes and corn, and on a considerably expanded area. The entire complex of work on the flax fields must be conducted promptly as well so as to fulfill the plan for the sale of flax products to the state and to make up for the shortage of them that existed in the oblast last year. Emphasis has been placed on the importance of stepping up work for planting sugar beets and extensively applying industrial technology for their cultivation which makes it possible to obtain a large yield with minimal expenditures of labor and funds. [Excerpts] [Minsk SEL'SKAYA GAZETA in Russian 2 Apr 82 p 1] 11772

EXCEEDING PLAN-- Grodno--Chemists of the Azot production association have fulfilled an important point in their socialist commitments. By the beginning of planting time they delivered to the farmers 8,900 tons of nitrogen fertilizers translated into 100-percent active substance in excess of the state assignment. This quantity of fertilizers will be enough to improve up to 200,000 hectares of agricultural land. [Text] [Moscow SEL'SKAYA ZHIZN' in Russian 9 Apr p 1] 11772

CORN PLANTATIONS--Grodno--Farms of the oblast have begun mass planting of corn earlier than usual. Hydrophobization of the seeds contributed to this: covering them with polymer plastic which protects them from the cold, diseases and pests. The early shoots guarantee an appreciable additional yield. In Grodnenskaya Oblast 38,000 hectares of fruitful and more than last year have been allotted to corn. Following the example of farms of Ostrovetskiy Rayon, which receive no less than 400 quintals of green mass including cobs per hectare in any weather, the areas are located on sections with a southern slope which are protected from northern winds, which warm best and which are best lighted by the sun. [Text] [Minsk SEL'SKAYA GAZETA in Russian 24 Apr 82 p 1] 11772

BRESTSKAYA FIELD WORK--Spring field work is developing at rapid rates in the southern rayons of the republic. The farmers of Brestskaya Oblast have already top-dressed with mineral fertilizers one-fourth of the winter grain crop and almost half of the hayfields and pastures, and they are completing the application of fertilizers on fields where perennial grasses are planted. At the same time they are shipping in organic fertilizers, spreading them and plowing them into the soil on areas planted in barley, potatoes, sugar beets and other crops. Machine operators of Gomel'skaya and Grodnenskaya Oblast have also begun field work on a broad front. They have top-dressed 24 and 23 percent, respectively, of the winter crops, 62 and 45 percent of the perennial grasses and 17 and 22 percent of the hayfields and pastures. Each day more and more farms are entering into this work in the northern rayons of the republic. The newspaper's editorial staff is receiving information about the beginning of planting. The kolkhozes and sovkhozes of Stolinskiy, Pinskiy, Maloritskiy, Braginskiy, Khoynikskiy, Kalinkovichskiy, Lyubanskiy, Starodorozhskiy, Glusskiy and other rayons are planting barley and oats on peat bogs. Stolinskiy Rayon has begun planting grain crops on mineral soils. Taking into account the weather conditions and the condition of the soil, it is necessary: to step up the work on meadows and pastures; to conduct harrowing and top-dressing of the winter crops more rapidly; to increase the rates of application of mineral fertilizers; and, as the soil becomes ready, to begin planting. [Text] [Minsk SEL'SKAYA GAZETA in Russian 31 Mar 82 p 1] 11772

EXPRESS INFORMATION--The favorable weather conditions are contributing to rapid ripening of the soil. All rayons of Brestskaya and Gomel'skaya Oblast are engaged in mass planting of early spring crops, and many farms of Minskaya and Grodnenskaya Oblasts have also begun this work. As of 5 April, the following work had been done in the republic: planting of spring grain crops on 57,700 hectares or 3.4 percent of the plan; top-dressing of winter crops on 561,000 hectares or 38 percent of the plan; top-dressing of perennial grasses on 582,000 hectares or 45.5 percent of the plan. More than 14 million tons of organic fertilizers, or 22 percent of the assignment, have been applied to the areas planted in spring crops. [Text] [Minsk SEL'SKAYA GAZETA in Russian 6 Apr 82 p 1] 11772

SPRING CROPS--Today the teletype announces that the kolkhozes and sovkhozes of the republic have planted 41.9 percent of the planned quantity of spring grain and pulse crops. My oblast: Brestskaya--88.4, Vitebskaya--11.5, Gomel'skaya--74.0, Grodnenskaya--73.1, Minskaya--28.0 and Mogilevskaya--14.9. The farms of Brestskaya, Gomel'skaya and Grodnenskaya Oblast have completed the top-dressing of perennial grasses. Mogilevskaya Oblast is behind in applying organic fertilizers to the areas planted in spring crops--41.3 percent of the assignment. [Text] [Minsk SEL'SKAYA GAZETA in Russian 20 Apr 82 p 1] 11772

CSO: 1824/317

LIVESTOCK FEED PROCUREMENT

TAJIK SSR DECREE OF FEED RESOURCES PROMULGATED

Dushanbe KOMMUNIST TADZHIKISTANA in Russian 16 May 82 p 1

/Article: "We Will Procure More Feed!"/

/Text/ The Central Committee of the Communist Party of Tajikistan and the Council of Ministers for the Tajik SSR have adopted the decree entitled "Urgent Measures for Supplying Animal Husbandry With Feed and for Compensating for the Feed Shortfall Caused by the 1982 Drought."

It is mentioned in this decree that the unfavorable dry spring conditions experienced this year led to the premature drying out of the natural grasses on the winter pastures and to the destruction of grain crops on considerable areas of non-irrigated land grasses on haying lands and summer pastures.

The existing situation is arousing serious concern with regard to supplying livestock production operations with the feed required. However, many leaders and specialists of kolkhozes, sovkhozes and inter-farm enterprises are only slowly reorganizing their work in conformity with the annual conditions, they are not undertaking the measures required for ensuring that livestock production is supplied with feed and they are not making full use of the opportunities afforded by irrigation farming for increasing their production of feed. Moreover, some farms have still not completed their sowing of forage crops on irrigated lands. Use is not being made of common reeds, coarse stalk vegetation, rameal feed and other possibilities for supplementing the feed supplies. Crude violations are being tolerated in the feed harvesting and procurement technology.

The hay harvesting and silage harvesting equipment, mechanisms and feed preparation shops have not been prepared for operations in all areas, nor are they being utilized in an efficient manner. Not all of the feed procurement brigades on the farms have been staffed properly with the required manpower, equipment, transport vehicles and other material resources.

The waste materials from cotton production must be considered as the largest reserve for compensating for the shortfall in feed.

It is emphasized in the decree that under the existing conditions the oblast, municipal and rayon committees of the Communist Party of Tajikistan, the executive committees of oblast, municipal and rayon soviets of people's deputies, the leaders and specialists of kolkhozes, sovkhozes and inter-farm enterprises, the ministries of agriculture and the fruit and vegetable economy for the Tajik SSR, Goskomsel'khoztekhnika for the Tajik SSR and the State Committee for Forestry of the Tajik SSR must undertake urgent measures aimed at achieving maximum use of all available reserves and opportunities for augmenting the shortage in feed resources and satisfying the requirements of livestock production, while ensuring a high level of organization, discipline and increased responsibility by all workers participating in the harvesting and procurement of feed.

The Central Committee of the Communist Party of Tajikistan and the Council of Ministers for the Tajik SSR have tasked the oblast, municipal and rayon committees of the Communist Party of Tajikistan the executive committees of the oblast, municipal and rayon soviets of people's deputies, the ministries of agriculture and the fruit and vegetable economy of the Tajik SSR, Goskomsel'khoztekhnika for the Tajik SSR, the State Committee for Forestry of the Tajik SSR, the primary party organizations and the leaders of farms with ensuring, by 1982, the unconditional fulfillment by each kolkhoz, sovkhoz and inter-farm enterprise of the plans and socialist obligations for the production and procurement of coarse, succulent and other types of feeds, in order to:

...ensure fulfillment of the plan for sowing forage crops and find additional opportunities for expanding sowings on irrigated lands;

...develop and implement in each rayon, kolkhoz, sovkhoz, inter-farm enterprise and brigade specific measures aimed at obtaining a maximum yield of forage crops from each hectare. Special control should be exercised over the work of tending the plantings and harvesting all of the forage crops. Additional cuttings of alfalfa can be obtained through a maximum reduction in the between-cutting periods and through timely waterings and applications of top dressings;

...plow up sparse and low productivity alfalfa tracts which are more than 3 years of age and sow corn for grain and silage on these areas no later than 20 June;

...to plant secondary forage crops no later than 1 July on areas made available following early sowings on irrigated lands;

...organize the planting of stock melons and gourds along collectors, conveying channels and along the edges of fields;

...organize the procurements of wildgrowing grasses, common reeds and so forth in all areas: in ravines, on the floodplains of rivers, along collectors, conveying channels and roads and also on the slopes of mountains;

...undertake measures aimed at achieving maximum procurements and utilization for feeding to livestock of the waste products of cotton production -- guza paya, glumes of cotton bolls. In the process, these waste products should be procured from those areas where the least use was made of toxic chemical and defoliants;

...achieve continuous double-shift operation of the entire feed procurement and feed processing equipment, units and mechanisms. Personal responsibility for the highly efficient use of the feed procurement machines and the equipment of feed preparation shops and feed lines is entrusted to the leaders of the kolkhozes, sovkhozes, inter-farm enterprises and subunits of Goskomsel'khoztekhnika for the Tajik SSR;

...increase the procurement volumes for green feeds, mixed silage, vitamin grass meal and to make extensive use of these products in the rations for hogs and poultry, in the interest of realizing economies in the consumption of concentrates at specialized poultry production and pig farming farms;

...process the coarse feed procured in past years into granulated feed mixtures in all areas for the intensive fattening of sheep and also to ensure the timely delivery of these materials to the wintering areas for the livestock. To direct the efforts of the sheep raisers to extending the periods for the grazing and maintenance of the sheep and goats on the summer pastures and providing full protection for the animals.

It is considered advisable for the cotton growing brigades of kolkhozes and sovkhozes to organize the fattening of large and small-horned cattle using internally procured feed. To increase the collection and use for feeding to the livestock of food and vegetable scraps and also waste products obtained from enterprises of the meat and dairy, wine-making, canning, food and milling and mixed feed industries.

The plans call for strict observance of the technology for the procurement, storage and laying in of haylage and silage only in enriched form with feed phosphates and carbamide and the extensive use of chemical preservatives. Use is to be made in all areas of additional payments to labor for high quality in the feed procured.

The State Committee for Forestry of the Tajik SSR has been tasked with undertaking additional measures aimed at increasing the volume of coarse feed procurements over and above the task established for 1982 and also for assigning areas to the kolkhozes, sovkhozes and inter-farm enterprises for the grazing of livestock and the procurement of hay.

The Ministry of Land Reclamation and Water Resources of the Tajik SSR, Glavtadzhikvodstroy and the Tadzhikirsovkhozstroy Association have been tasked with providing practical assistance to the kolkhozes, sovkhozes and inter-farm enterprises in the irrigation of small tracts for the sowing of forage crops.

The oblast, municipal and rayon committees of the Communist Party of Tajikistan the executive committees of oblast, municipal and rayon soviets of people's deputies, professional trade union and komsomol organizations, primary party organizations and the leaders of kolkhozes, sovkhozes and inter-farm enterprises have been enjoined to launch an extensive socialist competition for the procurement of feed, to ensure material and moral incentives, to create the necessary cultural-domestic conditions and to organize public catering for workers engaged in harvesting and procuring the feed. The collectives of enterprises, organizations and institutes in cities, settlements and rayon centers must examine the problem of furnishing assistance to the farms in harvesting the feed, in the form of additional equipment and personnel.

Temporary party and party-komsomol groups and deputy posts must be created at the harvesting-transport complexes for the purpose of intensifying organizational and mass-political work in connection with the feed procurement work.

Challenge red banners of the Central Committee of the Communist Party of Tajikistan and the Council of Ministers for the Tajik SSR, together with monetary awards, are being instituted for the purpose of raising the labor activity of the agricultural workers and encouraging the oblasts and rayons of republic subordination to achieve high rates in the harvesting and procurement of feed.

The challenge red banners with the monetary bonuses will be awarded every 15 days, commencing 15 May, upon notification by the ministries of agriculture and fruit and vegetable economy of the Tajik SSR, the appropriate republic branch committees of the professional trade union and the CSA for the Tajik SSR.

The editorial boards of the republic newspapers, the State Committee for Television and Radio Broadcasting of the Tajik SSR have been enjoined to publicize extensively the course of the republic's socialist competition for the harvesting, procurement and processing of feed on farms and in the rayons and oblasts.

The Central Committee of the Communist Party of Tajikistan and the Council of Ministers of the Tajik SSR have expressed confidence that the agricultural workers and all workers throughout the republic, inspired by the decisions handed down during the 26th CPSU Congress and by the speeches delivered by the General Secretary of the CC CPSU and Chairman of the Presidium of the USSR Supreme Soviet Comrade L.I. Brezhnev during the 17th Congress of the Professional Trade Unions of the USSR and during festivities held in Tashkent on the occasion of the Order of Lenin being conferred upon the Uzbek SSR, will undertake all of the measures required for overcoming the existing difficulties in feed production, successfully carry out the plans and obligations of the second year of the Eleventh Five-Year Plan and worthily prepare for the 60th anniversary of the USSR.

7026
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LIVESTOCK FEED PROCUREMENT

MEASURES TO IMPROVE PASTURAGE OUTLINED

Moscow SEL'SKAYA ZHIZN' in Russian 14 May 82 p 2

/Article by D. Yakushev, department head at All-Union Scientific Research Institute of Fodder imeni V.R. Vil'yams and M. Shcherbakov, senior scientific worker: "From Improved Meadows"/

/Text/ Natural haying and pasture land occupy more than 320 million hectares or almost 60 percent of the country's agricultural lands. Their proportion in the feed balance of farms in the Far North, the Trans-Caucasus and Central Asia is 50-70 percent. Up to 47 percent of the feed is obtained from meadow and pasture lands of kolkhozes and sovkhozes in the Baltic region and Belorussia and more than 35 percent -- in the Russian Federation.

Each year the kolkhozes and sovkhozes procure more than 500 million tons of fodder from haying and pasture lands. This year the plans call for these volumes to be increased to 600-610 and by the end of the five-year plan -- to 650-660 million tons. However, the real potential of the meadow economy is much greater. The data supplied by scientific institutes reveals that in all zones of the country -- from the forest-tundra to the desert region -- the majority of the kolkhozes and sovkhozes are capable of increasing their harvest of feed from meadows and pastures by a minimum of 1.3 to 1.5 times.

The most radical means for raising the productivity of meadows is that of all-round land reclamation, with the carrying out of hydraulic engineering and soil improvement work and the creation of sown and highly productive stands of grass. However, the carrying out of surface improvements on the haying and pasture lands must not be overlooked, particularly in view of the fact that these methods do not require great expenditures, can be carried out by any farm and produce a rapid and at times an immediate return.

In the zone of adequate moisture, the chief method is that of applying fertilizers. Meadow grasses require many nutrients, particularly when they are used for pasture purposes or for obtaining repeated cuttings, with a stand of grass being pushed back repeatedly into earlier phases of its growth. In order to obtain 1,000 additional feed units from cereal grass and cereal-mixed herb pastures and multi-cutting meadows, 40-50 kilograms of nitrogen and potassium and 20-25 kilograms of phosphorus should be applied. In order to obtain 10 additional quintals of hay, 30-35 kilograms of nitrogen and potassium and 20-25 kilograms of phosphorus should be applied per hectare to the haying meadows. Each kilogram of active agent furnishes 15-25 and more feed units. Is this not a high return? During an experiment carried out at the VNII Kormov /All-Union Scientific Research Institute of Feed/, with systematic use being made of fertilizer on dry valley haying land, an average of 64 quintals of hay was obtained per hectare over a period of 33 years (a third of a century), with a simultaneous increase in soil fertility being achieved.

This work is being carried out very extensively and purposefully in Belorussia and Lithuania, where practically all of the haying and pasture lands which were improved earlier are annually being supplied with from 120 to 200 kilograms of nitrogen, phosphorus and potassium fertilizers (in active substance) per hectare. It is by no means an accident that the grass yields being obtained here from improved haying lands are 2.5-3 times higher than the average level for the union.

The grasses know no equal in terms of the return being realized from the fertilizers in the form of products. Nevertheless, the haying and pasture lands on many farms, including sown lands, have not had a top dressing applied to them in years. Only one third of the improved meadows are receiving fertilizer in a systematic manner. Over a period of many years a large portion of the natural feed lands have either not been fertilized at all or they have been supplied with 5-7 times less nitrogen, phosphorus and potassium than has been withdrawn with the crops. It is time to do away with this "tradition," for it is impossible to achieve stable feed production if fertilizers are not applied to the haying and pasture lands in a constant manner.

But the farms lack the required amounts of fertilizer. Thus this year the fertilizers must be applied to those lands which produce the greatest effect. These are irrigated pastures, floodland meadows, estuaries and other tracts having stable moisture and grass stands with good botanical structures. Technologies recommended by scientific institutes which take into account the moisture conditions, fertility of the soil and the structure and intensity of use of grass stands can be of assistance in obtaining high returns from fertilizers. For example, in order to obtain 50-60 quintals of dry bulk per hectare from two cuttings of leguminous-cereal grass meadows, on sod-podzolic soil containing 5-7 milligrams of mobile phosphorus and 8-12 milligrams of exchangeable potassium in 100 grams of soil, it is necessary to apply 45-60 kilograms of phosphorus and 85-100 kilograms of potassium per hectare. On grass stands used for pasturage and multi-cuttings, the norms for phosphorus are increased to 70-80 and that for potassium -- to 150-200 kilograms.

On haying and pasture lands having cereal grass and cereal-diverse types of grass stands, the cropping power is determined by the level of nitrogen nutrition. Their maximum productivity (8,000-10,000 feed units) is achieved when 240-300 kilograms of active nitrogen fertilizer is applied per hectare, in combination with 60-90 kilograms of phosphorus and 120-180 kilograms of potassium. The best period for applying the nitrogen fertilizers is in the spring, the period in which the aftergrowth of the grasses commences. In behalf of the crop to be obtained from the next cuttings or grazing cycles, the mineral fertilizer is applied immediately following the mowing or grazing. A delay in carrying out this work reduces the period for the formation of the next crop and lowers the productivity of the meadows.

Potassium fertilizers, similar to nitrogen fertilizers, are applied fractionally when a norm of 120 kilograms of active agent or higher is employed. This prevents an excessive accumulation of potassium from developing in the feed.

In the majority of regions throughout the country the grasses endured the winter well and the soil contains adequate moisture. Moreover, importance is being attached to making extensive and efficient use of fertilizers on meadows for the purpose of increasing the production of hay and pasture and other feed. Use should ideally be made here of liquid ammonia and livestock production runoff. The expenses for applying liquid ammonia to the soil are 20-25 percent less than those for ammonium nitrate and the labor expenditures are reduced by 2-2.5 times.

A large amount of moisture is required for the normal development of meadow grasses. The time is at hand for displaying concern for irrigating haying and pasture lands. The most suitable and economically profitable method for rayons in the forest and forest-steppe zones is that of sprinkler irrigation from closed irrigation pipelines of the stationary or semi-stationary type. Whereas any sprinkling machines can be employed on sandy loam and sandy soils, for medium and heavy clayey loam soils a preference is shown for units or items of equipment having a low shower intensity. They make it possible, with no runoff, to moisten the root layer of soil, maintain an optimum irrigation regime and obtain high yields.

Experience in the highly efficient use of haying and pasture land can be found in all zones throughout the country. For the nonchernozem zone, the example of the Povadinskiy Sovkhoz in Moscow Oblast is rather instructive. Here regular irrigation and fertilizer applications at the rate of 240-200 kilograms of nitrogen, 80 kilograms of phosphorus and 120 kilograms of potassium during a season make it possible to obtain 6,500-7,200 feed units per hectare from the entire area of pastures. In Rostovskaya Oblast, many farms in Matveyevo-Kurganskiy and Oktyabr'skiy Rayons, following irrigation and fertilization, are obtaining 8,000-10,000 feed units from each hectare of pasture. Thus, at the Mir Kolkhoz in Matveyevo-Kurganskiy Rayon, 5-7 waterings are being carried out with an overall irrigation norm of 2,500-3,500 cubic meters per hectare and 160-200 kilograms of nitrogen and 90 kilograms of phosphorus are being applied. The productivity of each hectare amounted to 500 or more quintals of fodder.

The experience accumulated in Pavlodarskaya, Omskaya, Khar'kovskaya, Gomel'skaya and Kaluzhskaya Oblasts in improving floodplain meadows is deserving of special attention. In Pavlodarskaya Oblast, extensive use is being made of such methods for improving floodplain meadows as fertilizer applications and the undersowing of grasses. The sovkhozes Presnovskiy, Chernoretskiy and Yamyshevskiy and a sovkhoz-technical school are obtaining 23-28 quintals of hay per hectare. The Krasnokutskiy and Zachepilovka inter-farm enterprises are developing meadows on the floodplains of small rivers. The harvesting of feed has increased by a factor of 3.6 in Irasnokutskiy Rayon. An association which occupies only 5 percent of the rayon's land is producing 19 percent of all of the feed.

Estuary irrigation is being employed at the Krasnyy Patrizan Kolkhoz in Astrakhanskaya Oblast. The cropping power of the haying lands increased by 1.5-1.6 times. The Kolkhoz 40 Let Oktrabrya in Volgogradskaya Oblast, using one-time flooding of estuaries combined with a top dressing of nitrogen-phosphorus fertilizers, raised its hay yield from 7 to 30 quintals per hectare.

In the face of a delayed and warm spring period, the duration of the floowing must not exceed 20-25 days and in the event of an early and cold spring -- 35-40 days. If the grass has begun sprouting and the air temperature exceeds 15 degrees, then the water can be retained in the estuaries for no more than 5 days.

Skilful use is being made of the mountain meadows in Karachayevskiy and Zelenchukskiy Rayons in the Karachayevo-Cherkesskaya AO. Thus the Znamya Kommunizma Kolkhoz, as a result of having carried out surface improvements on 2,648 hectares of natural haying land, increased its hay yield from 7-8 to 40 quintals per hectare. Considerable improvements were realized in the cropping power of mountain meadows at the Krasnovostochnyy, Kumyshskiy and Verkhne-Kubanskiy Sovkhozes and at many other farms in this autonomous republic. This experience can be employed extensively in the north Caucasus and in the Trans-Caucasus regions.

In the zone of deserts and semi-deserts, great results are being obtained from regulating the use of land through the use of distant pastures and pasture rotations with two seasons of use and alternating of spring and summer pastures.

All of these measures are simple and permissible. However, their effectiveness will be higher if specialized subunits are created at each farm and inter-farm enterprise, with these subunits being assigned haying and pasture land, the necessary machines and equipment and an efficient system for controlling material and moral incentives. In particular, more extensive use must be made of the job contract plus bonus method of wage payments, with temporary advances being paid out prior to obtaining the products.

7026
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LIVESTOCK

INCREASING EFFICIENCY OF LIVESTOCK PRODUCTION

Moscow EKONOMIKA SEL'SKOGO KHOZYAYSTVA in Russian No 5, May 82 pp 20-29

/Article by G. Yelistratov, candidate of economic sciences and A. Yakushev, candidate of economic sciences: "Vital Problems Concerned With Raising the Efficiency of Livestock Production"/

/Text/ The accelerated development of livestock production is an area of special concern in our country. As is known, the party and government are constantly devoting a maximum amount of attention to this problem. For example, the decisions handed down during the September (1953) Plenum of the CC CPSU are playing a great role in the work of developing livestock production. A number of vital questions were raised during the Plenum: the rapid reestablishment of the number of productive animals, a change in the system of planning, introduction of the hectare principle of mandatory deliveries of livestock products and increased attention with regard to strengthening the feed base and mechanizing laborious operations on the farms. The decisions handed down during the March (1965) Plenum of the CC CPSU, which produced a complex of measures for raising material interest in the production of agricultural products and further strengthening the material-technical base of the kolkhozes and sovkhozes, greatly promoted an acceleration in the development of the branch.

In conformity with special decisions handed down by the party and government, the country's Ptitseprom system was formed, the mixed feed and microbiological industry underwent accelerated development, large livestock production complexes are under construction and the production of machines for animal husbandry and feed production has been expanded considerably.

The realization of these and many other measures has exerted a positive effect on the development of livestock production. During the past three five-year plans alone, the average annual production of meat almost doubled, milk production increased by a factor of 1.5 and egg production -- by more than twofold.

However, the problems associated with the accelerated development of livestock production are still urgent at the present time. Animal husbandry is still not satisfying the increasing requirements of the population for such food products as meat and milk and this has pushed into the foreground the need for solving the food problem and viewing it as a central task for the immediate future from both an economic and political standpoint.

In conformity with the "Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990," the average annual production of meat during the Eleventh Five-Year Plan must be raised to 17-17.5 million tons in dressed weight, milk -- to 97-99 million tons, eggs -- to no less than 72 billion and wool -- to 470,000-480,000 tons. This will require an increase of almost threefold in the rate of growth in meat compared to the preceding five-year plan and for considerable increases to be achieved in the production of milk and other products.

As is well known, the Tenth Five-Year Plan was complicated from the standpoint of development of livestock production. Notwithstanding this fact however, the annual production of meat (in dressed weight), compared to the Ninth Five-Year Plan, increased by 0.8 million tons, milk -- by 5.3 million tons, eggs -- by 11.7 billion and wool -- by 16,700 tons. Increases also took place in the state procurements of these products.

If we take into account the fact that there were three extremely unfavorable years for the development of livestock production during the Tenth Five-Year Plan, then it can be stated quite justifiably that this increase in output became possible only as a result of the tremendous efforts by the party and people aimed at strengthening the logistical base of agriculture and ensuring the consistent implementation of the Leninist agrarian policies of the CPSU.

More than 173 billion rubles worth of capital investments were allocated for agricultural development during the Tenth Five-Year Plan and considerable increases took place in the deliveries of tractors, motor vehicles, agricultural machines and mineral fertilizers.

Over the past 10 years, the fixed capital of animal husbandry at kolkhozes, sovkhozes and inter-farm enterprises increased from 35.6 to 100.6 billion rubles and their proportion of the overall value of the production capital of an agricultural nature increased from 44.6 to 47.7 percent. At the present time, 85 percent of the large-horned cattle, 93 percent of the pigs, 77 percent of the sheep and 96 percent of the poultry are being maintained in excellent livestock facilities.

The level of mechanization and automation of laborious production processes in livestock production has been raised substantially. Thus the level of mechanization in the milking of cows in the public sector in 1980 was raised to 90 percent compared to only 56 percent in 1970, the mechanization of watering -- 89 and 68 percent respectively, issuing of feed -- 45 and 12 percent and the removal of farmyard manure -- 75 and 30 percent. Today the kolkhozes and sovkhozes are equipped considerably better in terms of feed harvesting equipment, and highly mechanized feed preparation shops are being built on the farms. Over a period of a decade, mixed feed production at state mixed feed enterprises increased by a factor of 2.2 and overall production, taking into account the output at inter-farm enterprises and directly on farms -- by a factor of 2.8. Of the state resources for livestock production, 57.4 million tons of concentrated feed were allocated in 1980, or 3.1 times more than in 1970.

The great amount of work carried out for the purpose of strengthening the logistical base for livestock production and the increasing numbers of livestock serve to underscore the fact that this branch at the present time, as never before, possesses considerable production potential and this makes it possible to impose upon it greater demands for more improved final results and also for improved utilization of the resources being made available. In this regard, it would be wrong to overlook the substantial shortcomings being observed today in the development of livestock production. These shortcomings are restraining the rate of growth for the production of meat, milk, eggs and other products and they are adversely affecting the branch's economic indicators.

Special concern is being aroused in particular by the low level of productivity in the animals. At the present time, with the number of livestock and poultry throughout the country as a whole having reached adequate proportions, an increase in the productivity of the brood stock and an intensification in the raising and fattening of young stock are of special importance. "Here we have in mind" stated L.I. Brezhnev during a report delivered before the July (1978) Plenum of the CC CPSU, "the need for increasing the number of animals in all areas, raising the productivity of all types of livestock and poultry as rapidly as possible, converting over to the use of intensive methods in the conduct of livestock production operations and transforming it into a modern and highly effective branch (Brezhnev, L.I. Lenin's Program, Moscow, 1979, 407 pages).

The country's dairy cows, assuming a proper feeding and maintenance level, possess great potential possibilities. The proportion of pedigree cows compared to their overall number is 99.7 percent, including pure-breds -- 35 percent. In addition, a process is in progress involving changes in the ratio of individual strains of cattle, particularly an increase in the number of animals of the black-variegated strain. The proportion of this strain, which is distinguished by high milk productivity, amounted to 24 percent in 1980 compared to 16 percent in 1974.

The potential of this strain is borne out by the operational experience of many farms in our country, all of which achieved a high productivity. A clear and convincing example of this is provided by the collective at the Order of Lenin Znak Pocheta Stud Farm No 9 in Permskaya Oblast, headed by Hero of Socialist Labor and a great expert and master of his work A.V. Sokolov. The dairy herd of this plant, which numbers 800 cows, has the highest productivity in the country -- 6,000 kilograms of milk per cow. Worthy of note is the fact that these high indicators were obtained under the difficult conditions which prevail in the western Urals region.

Based upon the available genetic potential of the country's dairy herd, there is every reason for stating that the average level of productivity can be raised to 3,000 kilograms of milk annually. Such a task was assigned during the July (1978) Plenum of the CC CPSU. However, owing to unfavorable weather conditions and the continuing disproportions in the balance between the number of livestock and the feed resources, the differences in farms in terms of the level of feed availability and the shortcomings in the use of existing feed resources, no success has as yet been achieved in solving this task.

The highest productivity for the milking herd in the public sector was achieved in 1977 (2,445 kilograms of milk from each cow). During subsequent years, the productivity of the cows began to fall noticeably. At the present time, only 10.5 percent of the kolkhozes, sovkhozes and inter-farm enterprises are obtaining more than 3,000 kilograms of milk per cow annually. Almost 41 percent of the farms are obtaining less than 2,000 kilograms and more than 700 farms -- less than 1,000 kilograms of milk annually.

The chief factor delaying growth in productivity has been and continues to be that of weak development of the feed base. For the purpose of carrying out the decisions handed down during the July (1978) Plenum of the CC CPSU, a complex program for the development of feed production has been developed and is being implemented throughout the country. The program calls for measures aimed at improving field feed production and natural haying and pasture lands, the extensive introduction of progressive technologies for the procurement and storage of feed, the preparation of the feed for feeding to the animals, an increase in the production of industrially produced feed and many others.

The measures undertaken are exerting a positive effect on growth in the production of feed. During the years of the Tenth Five-Year Plan, years considered to be extremely unfavorable from the standpoint of weather conditions, the production of coarse and succulent feed for example increased by 18 percent and the overall consumption of all feeds compared to the average annual consumption during the Ninth Five-Year Plan increased by 8 percent.

However, success was still not achieved in eliminating the many shortcomings which exist in connection with strengthening the feed base. At the present time, the lack of balance in the feed rations in terms of nutrients stands out more clearly than earlier was the case. Over the past 10 years, for example, the overall consumption of feed in feed units by the dairy herd increased by 25 percent and the feeding level for cows increased from 27 quintals of feed units in 1970 to 32-33 quintals in 1980, or an increase of 18-20 percent. However, the productivity of the cows for all practical purposes did not increase, while feed expenditures per quintal of milk increased.

Moreover, the overall level of feeding for cows has increased in recent years owing to the use of concentrated feeds. Thus, for example, during the period from 1965 to 1980, the consumption of such feed per cow increased (in feed units) from 3.1 quintals to 7.5 quintals, while the consumption of succulent feeds remained at the level of 5.5 quintals and succulent feeds -- approximately 7 quintals. Moreover, the proportion of straw in the structure of coarse feeds increased while the consumption of hay decreased from 3.9 to 3.1 quintals. Such a situation developed owing to the fact that during the Tenth Five-Year Plan the plan for procuring coarse and succulent feeds was fulfilled only on farms in the Uzbek SSR, the Azerbaijan SSR, Turkmen SSR and the Kazakh SSR. And on farms in individual republics such as the RSFSR, the Lithuanian SSR, Latvian SSR, Kirghiz SSR, Tajik SSR and the Estonian SSR, the process of a decline in the procurement volumes for these types of feeds continued and especially hay. The quality of the feed remains low.

In 1981, of the feeds checked for quality, 34 percent of the hay and silage and 46 percent of the haylage were categorized as being of 3d class or non-graded. On farms in the Moldavian SSR, 35 percent of the hay was non-graded, in the Armenian SSR -- 46 percent and 36 percent of the haylage in the Kazakh SSR was non-graded. In recent years, a stronger tendency has been observed towards lowering the consumption by dairy cows of the cheaper and milk-producing pasture feeds. Compared to the early 1960's when each cow obtained up to 7 quintals of feed units from pasture feeding, by the end of the 1970's this figure had dropped to only 5.3-5.5 quintals. This type of feed is compensated for by summer green feeds and yet their total consumption is not increasing. As a result, the level of dairy productivity during the summer period is not only not increasing but in fact it is decreasing somewhat.

An analysis of the growth in the production of livestock products at kolkhozes, sovkhozes and other state farms reveals that almost the entire increase in the production of meat, milk and wool during the Tenth Five-Year Plan was achieved by means of an increase in the number of livestock.

Quite often an attempt is made to explain away the many shortcomings in the development of livestock production in terms of the increasing numbers of animals. There can be no doubt but that with a relatively low feeding level the task of obtaining additional output through an increase in the number of animals is always more costly. In addition, a greater number of animals requires more facilities, additional manpower and so forth. In this regard, individual scientific workers and at times practical workers have proposed achieving a balance between the number of animals and the feed available by reducing the number of animals.

However, it is our opinion that such a proposal is still not acceptable owing to a number of circumstances. First of all, the low availability of feed for the animals is often caused by organizational problems, by great losses of feed during the harvest period, by weak equipping of the farms with feed harvesting equipment, by unsatisfactory equipment usage and by incomplete solutions for those problems concerned with implementing the processes of concentration in livestock production and converting it over to an industrial basis. The excesses of some factors and the lagging behind of others are delaying overall forward progress and precluding the possibility of utilizing the powerful action of the branch's resources. A reduction in the number of animals under these conditions does not eliminate other shortcomings and may lead to a reduction in output production.

We are fully convinced that the lag in development can be overcome and the feed base strengthened. The country's farms have great opportunities at their disposal for increasing the production of feed. More than 320 million hectares of kolkhoz and sovkhoz land are occupied by natural haying and pasture land alone. This is a tremendous area and yet by no means is its potential being utilized fully. With proper use, the haying and pasture lands can and must become the principal source for providing feed for livestock production. According to estimates by the All-Union Scientific Research Institute for Feeds imeni V.R. Vil'yams, an expansion in the area of improved haying and pasture lands and improving their productivity in keeping with their true potential can serve to increase the production of feed on natural lands by no less than 2-2.5 times. Towards this end, it will be necessary to halt all negative tendencies and eliminate the elements of mismanagement. Here we are speaking mainly about expanding the areas of natural haying lands, harvested for hay. As is known, their area has decreased in recent years: compared to 1966 when hay was obtained from approximately 54 million hectares, in 1979 and 1980 -- less than 40 million hectares.

Up until now, work has been carried out extremely slowly in connection with radically improving the haying and pasture lands and creating highly productive grass stands on them following the construction on these areas of irrigation systems. Thus for example, in 1979, of 276,000 hectares of irrigated haying land actually harvested for hay, only 31,000 hectares underwent radical improvements. A similar situation has prevailed since that time. Thus the hay yield from irrigated haying lands is low and does not exceed 16 quintals per hectare.

Experience has shown that mineral fertilizers are most effective when applied to haying and pasture lands. However, a fertilized area grows slowly and not in keeping with an increase in the deliveries of mineral fertilizer. All of this underscores the fact that a change for the better, in terms of an improvement in the use of natural feed resources, can be achieved through common efforts.

A typical feature of all farms which have achieved a high productivity in their milking herds is good availability of hay for the cows. The structure of the feed ration for dairy cows, owing to the unfavorable weather conditions and other factors prevailing at many kolkhozes and sovkhozes at the present time, is considered by the scientists and practical workers to be far from optimum. The high acidity level of the feeds constituting the principal portion of the ration is reflected in the reproductive function of the cows and this in turn directly affects adversely the dairy productivity of the entire herd. It is known that each barren cow furnishes a minimum of from 200 to 400 less kilograms of milk annually. In recent years, 77-78 calves have been obtained from every 100 cows on an average farm and in the Georgian and Kazakh SSR's -- less than 70. The reproduction of large-horned cattle is also unsatisfactory on farms in the Turkmen and Azerbaijan SSR's.

Failure to attach proper importance to the construction of feed storehouses, as a result of which large feed losses continue to take place during storage, is included among those organizational factors which substantially and adversely affect the status of the feed base. Distinct from livestock production buildings, the availability of storehouses for feed, especially standard ones, is still very low.

Progressive technologies for the harvesting and preserving of feed are still being introduced very slowly into the operational practice of kolkhozes and sovkhozes. The insufficient equipping of the kolkhozes and sovkhozes with the necessary equipment, negligible delivery volumes for preservatives and plastic film and so forth are playing a definite role in this regard. Definite progress in solving these problems is beginning to be noted and its results must be reflected in improved feed quality and in a reduction in feed losses.

According to data supplied by scientific institutes, up to 30 percent of the nutritional value of feed at the present time is being lost owing to the untimely harvesting of forage crops and failure to observe the technological requirements for the harvesting and storage work. A reduction in losses is a real concern and the return to be realized from carrying out appropriate measures aimed at reducing the harvesting periods and carrying out other technological requirements will be great indeed.

Thus the principal concern today is that of raising the level of livestock feeding by increasing the procurement of coarse, succulent and other types of feed and making more complete use of the potential available for doing this. Only such an approach will produce the required return. However, beyond any doubt there must be maneuverability in the permissible amounts in the number of livestock, especially those entering the wintering program, and the farms themselves must determine the number of animals. This was the thrust of the decree of the CC CPSU and the USSR

Council of Ministers entitled "On Improving Planning and Economic Stimulation in the Production and Procurements of Agricultural Products." This decree condemned the practice of establishing "upper limits" for the farms in terms of sowing areas, number of livestock and other tasks, excluding procurement volumes.

In successfully solving the tasks concerned with the accelerated development of livestock production and the rational use of feed, great importance is attached not only to simply raising the level of feed consumption per head of livestock but also to organizing efficient and continuous feeding for them. Unfortunately, substantial shortcomings also exist in connection with this problem.

In recent years, with a certain increase taking place in overall feed consumption per head of livestock, a considerable portion of this increase results from feed obtained from the state resources. The specifics of this problem are such that, prior to the commencement of the wintering program and during its course, the farms are unable to compose a real plan for feed consumption. An analysis of the data on feed availability at the farms and overall consumption testifies to the fact that the differences between these indicators are increasing. This is associated with an increase in the amount and proportion of feed being obtained from the state resources. The system of centralized provision of feed from state resources at the present time works out well at large-scale enterprises: poultry factories, pig farming complexes, which regularly obtain this feed and arrange their own work, possessing a firm knowledge of their deliveries.

Individual farms obtain a considerable amount of feed from the state resources in the form of one-time assistance, tolerating in the process interruptions in the feeding of their livestock. This lowers the overall effectiveness of the feed consumed and it leads to increased feed expenditures per unit of output. Without negating the importance of the assistance being provided to the farms for maintaining their level of feeding, the conclusion can nevertheless be drawn that the development of livestock production on an intensive basis is possible primarily when there is an ample supply of feed available directly on the farms. In this regard, a substantial change is required in the practice of individual farms, with unplanned deliveries of feed being reduced to a minimum. At the same time, an increase in the overall level of livestock feeding should not be viewed as an end in itself, since feed expenditures per unit of output must decrease as the feeding level grows.

A chief concern is that of achieving dynamic growth in animal productivity based upon an improved level of feeding for them. This alone will make it possible to improve all of the other quality indicators.

Examples are to be found in each republic, oblast and almost in every rayon of strong feed bases being created followed by increasingly higher productivity for the animals. Thus, at the Sputnik Sovkhoz in Svetlinskiy Rayon in Orenburgskaya Oblast, hay procurement increased by a factor of more than 1.5 during the years of the Tenth Five-Year Plan. Twelve hundred cows with calves are being maintained here. One hundred calves are being obtained at the sovkhoz from every 100 cows and heifers. The average daily increase in weight in young stock under 8 months of age is 630-770 grams.

The need for raising the productivity level of the animals is dictated by the shortage of livestock production workers in individual regions of the country. One urgent task of many kolkhozes and sovkhozes is that of intensifying in every possible way the production of milk and other animal husbandry products with a reduced number of farm workers. The successful solving of this task will undoubtedly promote further growth in the mechanization of laborious operations and the conversion of livestock production over to an industrial basis. However, noticeable results from such work can be realized only with growth in the productivity of the animals.

Attaching great importance to the indicator for growth in the productivity of the livestock and poultry, the computations for the plan for the Eleventh Five-Year Plan call for the entire increase in the production of animal husbandry products to be achieved on an intensive basis. The number of livestock, as a factor for growth in the production of animal husbandry products, retains its role mainly for farms in the Central Asian and Trans-Caucasus republics and for a number of other farms where the density of the livestock is still low at the present time.

The role of intensification in livestock production is also increasing in connection with the need for improving the branch's economic indicators. During the years of the Tenth Five-Year Plan, the economics of livestock production weakened considerably and the expenditures for 100 rubles worth of gross livestock output increased by almost one third. Many farms which are engaged in the production of milk, meat and other animal husbandry products, excluding eggs, are operating at a loss. Beyond any doubt, this exerts a substantial influence on all work and it weakens the role played by both the material and moral factors.

Following an objective evaluation of the situation, the directive organs undertook definite measures aimed at normalizing this situation. As is known, the procurement prices for many livestock products, primarily milk, were raised and some repeatedly. However, even with the new level of procurement prices only a negligible portion of the farms are carrying out their production operations with a relatively high profitability. As a rule, these kolkhozes and sovkhozes have good indicators for animal productivity, which determines for the most part the economic effectiveness of the branch.

Great opportunities are to be found on almost every farm for reducing expenditures. They must be utilized fully and the best conditions for expanded reproduction should be created, without detracting in this work from the higher procurement prices for milk and some other livestock products. And this is possible only in the presence of a raised level of intensity for livestock production and dynamic growth in its productivity.

A convincing example of growth in output production by means of intensive factors and based upon balanced feeding is that of poultry raising in our country. As is known, considerable measures have been carried out in our country in recent years in connection with converting this branch over to an industrial basis. Today the overwhelming majority of eggs and poultry meat are produced by poultry factories, enterprises which employ an improved technology and provide a relatively high level of feeding. Compared to 1970, egg production in the public sector during 1980 increased by a factor of 2.4, with the number of adult poultry having increased by a factor of 1.7; feed expenditures for the production of 1,000 eggs decreased from 3.8 to 2.5 quintals of feed units. The proportion of farms in the USSR Ptitseprom system engaged in the production of eggs was 85 percent and in the production of poultry meat -- 83 percent. The egg production of laying hens on farms in this system reached 215 eggs annually, against expenditures of 2 quintals of feed units per 1,000 eggs; at many leading poultry factories the operational indicators were considerably better.

The use of full-value balanced feed for feeding to livestock, as borne out by the operational practice of many farms and foreign experience, makes it possible to increase the average daily weight increases in the animals during fattening by a factor of 1.5-2 and to reduce feed consumption for the production of a unit of livestock output by 30-45 percent. Thus, at the Kolkhoz imeni Lenin in Grodnenskaya Oblast in Belorussia, a special technology was developed for the raising and fattening of young large-horned cattle of dairy and mixed strains using internally produced feed. Use of this technology in the raising and fattening of cattle will produce an average daily weight increase of 850-1,000 grams, with expenditures of 7.5-8 quintals of feed units for the production of 1 quintal of weight increase and a proportion of 20-30 percent concentrated feed in the structure of the ration. The animals are sold at a live weight of 450 kilograms at the age of 16-17 months.

On the other hand, many farms are failing to make sufficient use of the opportunities available for increasing meat production by raising productivity through the intensified raising and fattening of young cattle stock. For example, instead of 270-280 days under normal feeding and fattening conditions, the periods for the raising and fattening of hogs at kolkhozes, sovkhozes and other state farms in the Turkmen SSR, Kazakh SSR and the Ukrainian SSR are 450-500 days. For each head of large-horned cattle available at the beginning of the year, the farms in the Azerbaijan SSR, Georgian SSR and Turkmen SSR produce only 56-69 kilograms of meat (in live weight).

The experience of many farms indicates that the potential of the cattle is being utilized only weakly and mainly during the post-milking period, that is, at the age of 4 to 8 months. Quite often the animals do not receive the required feed during this period and thus they lag behind in their development. A disruption in the raising technology is one of the more widespread shortcomings. Its elimination will make it possible to improve considerably the production and economic indicators of the branch.

Organizational factors play a decisive role in this regard. A common and continuous technological cycle for the raising and fattening of cattle must be created. For example, at the specialized Shchigry complex for the raising and fattening of large-horned cattle in Kurskaya Oblast, during the course of converting over to accepting dairy calves from the kolkhozes and introducing a technology for raising and fattening, they began selling cattle at 15-18 months of age and at an average live weight of approximately 450 kilograms. The conversion over to a continuous and intensive technology for the raising and fattening of cattle is a fully realistic undertaking. It can be carried out on all farms. Specialized farms offer extensive opportunities for introducing such a technology into operations.

The experience of past years furnishes rich experience for solving these problems through the creation of combined production on an inter-farm basis. The farms in the Belorussian SSR, Ukrainian SSR, Moldavian SSR and in many oblasts, krays and autonomous republics of the Russian Federation are employing this method on an extensive scale. In addition to kolkhozes, a great role in organizing combined production operations is being played by the sovkhozes. For example, the sovkhozes of RSFSR Skotoprom now account for 15 percent of the total production (growth) in large-horned cattle in the republic. Approximately 800 cattle fattening sovkhozes in Russia are performing the function of inter-farm enterprises for the raising and fattening of cattle obtained from kolkhozes and sovkhozes. The organizational forms of activity by such farms are constantly being improved and the number of farms participating in cooperation is increasing. Today more than 12,000 kolkhozes and sovkhozes are directly associated with the work of cattle fattening sovkhozes in Russia and to a large degree they are responsible for achieving success in solving the task of increasing meat production and raising its effectiveness. The cattle fattening sovkhozes in Belgorodskaya, Chelyabinskaya and Orenburgskaya Oblasts are well known. With the support of local party, soviet and economic organs, they are constantly improving their production and economic indicators.

The farms in Krasnodarskiy Kray have moved up to a high stage in organizing the joint production of the meat of large-horned cattle and hogs. Based upon specialized kolkhozes, sovkhozes and inter-farm enterprises in the region, a unified network of farms have been merged together into the Krasnodarskotoprom System. The enterprises of this system organize all of the work concerned with the raising and fattening of livestock and feed production and a majority of them are achieving fine indicators and enjoying a fine reputation among surrounding kolkhozes and sovkhozes. The farms of Krasnodarskotoprom clearly reveal the advantages to be realized from specialization and concentration in agricultural production. Extensive use is being made throughout the kray of specialized farms and their subunits for producing plant feeds and ensuring that such production fully meets the requirements of the specialized livestock production farms and complexes. Such an approach has indeed proved its worth and has made it possible to improve considerably the continuous supply to the farms of the required feeds.

Many farms of Krasnodarskotoprom are converting over to accepting young calves from the kolkhozes and sovkhozes and they are creating a united production cycle for the raising and fattening of livestock. The work of introducing such a technology has recently been delayed by a shortage of starter feeds and whole milk replacements for continuous supply to the large specialized farsm. The five-year plan for the economic and social development of the USSR during the 1981-1985 period calls for a considerable increase in the production of milk substitutes. In addition, during the next few years the construction of new plants for the production of regenerated milk will commence throughout the country. Thus, great opportunities are becoming available for introducing intensive methods and technologies for raising calves and, on this basis, for achieving growth in the production of meat.

Just as in the past, dairy and mixed strains of cattle will play a substantial role in the production of beef in the coming years. At the same time, specialized beef cattle husbandry must undergo further development. At the present time, this branch of livestock production is still not sufficiently developed. The principal bulk of the beef cattle are to be found on small and non-specialized farms. By the end of the current five-year plan, the plans call for the number of beef cattle to be increased by a factor of no less than 1.5.

Specialized beef cattle husbandry will be concentrated in regions of insufficient moisture having vast areas of natural fodder lands: in the Kazakh SSR, in the southern Urals, in western and eastern Siberia, in regions of the north Caucasus, in the Volga region, in the mountainous regions of the republics of Central Asia and also in individual regions of intensive farming in the Ukraine and Belorussia, on newly organized farms specializing in beef cattle husbandry.

Under the conditions imposed by the intensification of livestock production, special importance is attached to converting the branch over to an industrial basis. Over the past 10 years, more than 3,000 livestock production complexes have been built and placed in operation, including for pork production -- 527, beef -- 311, milk production -- 2,045 and for the raising of heifers -- 144. A considerable number of complexes are in a stage of construction.

At the present time, the livestock production complexes account for approximately 30 percent of the pork sold to the state, more than 8 percent of the beef and approximately 6 percent of the milk and these proportions are expected to increase still further. The operational indicators of many complexes testify to the great opportunities which are available, especially for reducing labor expenditures for the production of a unit of output. At the present time, the labor expenditures at the complexes for pork production are 3.5 times lower than the average indicators for farms and those for beef production -- 4.2 times lower. Today the country can offer up many examples showing how the complexes have not only mastered but in fact have surpassed the planned indicators. For example, the average daily weight increase in hogs during raising and fattening at the Sovkhoz imeni 50-Letiya SSSR in Gor'kovskaya Oblast in 1980 reached 526 grams, compared to 500 grams as called for in the standard plan, the figures for feed consumption per quintal of weight increase were 4.2 and 4.3 quintals of feed units respectively, direct labor expenditures per quintal of weight increase -- 2.3-2.4 manhours; production cost per quintal of weight increase was 88.1 rubles.

Positive results were achieved in the work of complexes for the raising and fattening of young large-horned cattle stock and for milk production. Complexes for the raising and fattening of young large-horned cattle stock such as Druzhba in Vologodskaya Oblast, Pashskiy in Leningrad Oblast, Voronovo in Moscow Oblast, Valuyskiy in Belgorodskaya Oblast, Mir in Brestskaya Oblast, Yumatovskiy in the Bashkirskaya ASSR and others are obtaining average daily weight increases in their young stock of 1,000 grams or more, with feed consumption per quintal of weight increase of 5.4-6.2 quintals of feed units and they are selling cattle to the state at an average live weight of 418-487 kilograms.

The country's best dairy complexes achieved cow productivities in excess of 4,500 kilograms of milk annually, with direct labor expenditures per quintal of milk of 1.5-3 manhours. Thus, at the Chinaz Complex in the Uzbek SSR the average annual milk yield per cow amounted to 4,960 kilograms, Yudazhi in the Latvian SSR -- 4,721 kilograms and at the Kommunarka and Kalinovskiy Sovkhozes in Moscow Oblast -- 4,450 and 5,311 kilograms respectively.

On the whole however, the conversion of livestock production operations over to an industrial basis has been associated with great complications. This is borne out by the fact that as of 1 January 1981 only 25.6 percent of the complexes had mastered their planned capability for milk production, for the raising of heifers -- 30.7 percent, beef production -- 51.8 percent, raising and fattening of hogs --

39.1 percent. Many complexes are operating in a non-rhythmic manner, with the feed being obtained mainly from the state resources.

The concentrate type of feeding, characteristic of complexes, is producing good results in the production of pork, poultry meat and eggs and also in the fattening of young large-horned cattle stock, although it is not considered efficient owing to its lack of balance and the low quality of the feed. At the same time, at dairy complexes which have converted over to the concentrate type of feeding for cows, the indicators are clearly unsatisfactory. In connection with low productivity, many complexes, similar to rank and file farms, are operating at a loss and are unable to reduce their expenditures for labor and feed. The elimination of these shortcomings is associated to a great degree with changing the structure of the feed ration and increasing the proportion of coarse and succulent feeds in it.

Attaching great importance to the indicators for productivity and to the role they play in ensuring profitable farm operations when converting over to an industrial basis, the USSR Ministry of Agriculture, jointly with the scientific institutes, developed and by agreement with USSR Gosplan in December 1979 approved the norms for minimal livestock and poultry productivity at complexes and poultry factories, which will produce the required profitability. Studies have shown that in order to achieve even a negligible level of profitability, the livestock productivity at complexes must be as follows: cows -- no lower than 3,000 kilograms of milk annually, weight increase in young large-horned cattle stock during raising -- not less than 600 grams daily and in the raising and fattening of hogs -- 500 grams daily.

One of the chief tasks of all complexes and poultry factories at the present time is that of achieving the planned level of productivity and normative expenditures for feed and labor. The solving of this task is being delayed by a considerable lag in the creation of a feed base that is both reliable and well balanced. Many complexes placed in operation even several years ago lack highly productive feed lands and, as a result, the radius for feed deliveries has increased considerably. In addition, the complexes are being supplied with plant feed obtained mainly from fodder lands located on arable land, while at the same time natural feed lands are being removed from active use.

The industrial basis for conducting livestock production operations imposes raised requirements with regard to obtaining a good balance for all feed resources and high quality operations. Such results are still not being achieved at many of the complexes and this underscores the need for a more strict approach when justifying and adopting the decisions calling for their construction. We are of the opinion that the present system for providing the complexes with feed from state resources should be reviewed. In all probability, such feed should be issued strictly in accordance with the norms and only in the missing amounts in accordance with the technical-economic plan. The products obtained using feed from the state resources should as a rule be added to the all-union fund for subsequent redistribution.

Thus, when converting over to an industrial basis, the chief problem the solution of which will ensure successful work is that of creating a reliable feed base. A typical feature of this problem in connection with industrial production is still a good balance in the feed rations and a high level of quality for all feeds. However, during the course of increasing the proportion of concentrated feeds over the past few years, the balance in the rations in terms of digestible protein declined. At the present time, there are only 20 kilograms of protein per ton of grain feed with all of the high protein components being considered. This is two times lower than the norm requirement. The successful solving of the protein problem is greatly dependent upon the agricultural enterprises themselves, but in the process an increasing role is being played by those industrial ministries, departments and enterprises which produce high protein feed. They are still not producing them in the volumes called for in the corresponding decrees of the directive organs. The agricultural requirements for such feeds and feed additives as fish meal, yeasts, meat-and-bone meal, lysine, methionine and various macro and microelements are by no means being satisfied fully.

The strengthening of the feed base for livestock production during the Eleventh Five-Year Plan will be carried out along the following basic lines: raising the feed yield per unit of fodder land area on farms in all regions of the country; achieving higher indicators in solving this task by raising the role played by such a factor as applying a considerably greater amount of mineral fertilizer to the forage crops and carrying out an entire complex of soil improvement work. A second and equally important path to be pursued -- improving in every possible way the quality of all feed procured and reducing feed losses.

According to data supplied by the All-Union Scientific Research Institute imeni V.R. Vil'yams, considerable nutrient losses are sustained in grass feeds during their harvesting, storage and use. In other words, the situation with regard to feed availability will change substantially if the high quality feed is harvested completely and stored properly.

In the interest of reducing losses and raising the quality of the feed, the kolkhozes and sovkhozes are being supplied with greater quantities of feed harvesting equipment, feed preservatives and film with which to cover the feed. In addition, capital investments for the construction of feed storehouses are being increased. At the same time, measures will be carried out aimed at improving the structure of feed sowings and increasing the proportion of pulse crops in them.

Real opportunities exist within the country for successfully solving the feed problem. The plan for the Eleventh Five-Year Plan calls for the production of all types of feed to be increased considerably by 1985 compared to 1980. At the same time, plans have been outlined for raising the efficiency of use of feed. As a result, feed expenditures for the production of 1 quintal of livestock production output must be reduced substantially by the end of the five-year period. A reduction in feed consumption per unit of output, in addition to other conditions, is possible mainly by achieving growth in the productivity of the animals.

During the current five-year plan, a substantial change must take place towards intensive factors for branch development. We have in mind the fact that the principal proportion of the increase in the production of livestock products, namely 79 percent of the milk, 84 percent of the pork, 91 percent of the beef and 71 percent of the mutton will be obtained through growth in productivity. The average milk yield per cow in the public sector must be raised by 328 kilograms, the egg production of laying hens -- by 7 eggs, the output obtained from the raising of 1 head of large-horned cattle -- by 25 kilograms and that for hogs -- by 22 kilograms.

The subsidiary farms of enterprises, organizations and institutes must make a substantial contribution towards increasing the production of animal husbandry products. They must develop livestock production through more efficient use of the land assigned to them and through the use of various waste products obtained from industrial enterprises.

Both at the present time and in the future, the private plots of the population will play a considerable role in the production of livestock products. In conformity with the decisions handed down by the directive organs, the private plots of the population are to receive maximum assistance and support. It is sufficient to state that the 1982 plan alone calls for 14.9 million young pigs, 596.2 million head of young poultry stock and more than 3.5 million tons of mixed feed to be sold to the population. Other measures are also called for in order to furnish assistance in the form of feed for the livestock.

In connection with the development of livestock production, the Eleventh Five-Year Plan began with a year that was difficult in many respects, a year which to a definite degree raised the level of tension associated with carrying out the tasks established by the 26th CPSU Congress for branch development. However, the kolkhozes and sovkhozes were not deprived of the opportunity of carrying out these tasks. At conferences held in all areas in the union republics, krays and oblasts, the livestock breeders confirmed their desire to carry out fully the tasks set forth in the decisions of the 26th CPSU Congress for developing this vitally important branch and they defined specifically their tactical actions. The livestock workers have launched a campaign to raise the productivity of their cows, to improve considerably the reproduction of the herd, to eliminate barrenness and to improve the indicators in other branches.

As is known, the 26th CPSU Congress declared livestock production to be an important front for work in the rural areas. The Eleventh Five-Year Plan must become a turning point with regard to intensifying the rates of development for this branch. The successful development of livestock production is the main path to be followed for solving the country's food problem.

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COMMENTARY, FIRST QUARTER BELORUSSIAN LIVESTOCK TOTALS

Minsk SEL'SKAYA GAZETA in Russian 27 Apr 82 p 2

[Text] The first quarter has passed. What did it bring to animal husbandry workers of the republic and how are they coping with the plans and the commitments they have made? During January-March, as compared to the same period of last year, milk production in the public sector increased by 32,000 tons or by 5 percent, and the average milk yield per cow increased by 15 kilograms. The average daily weight gain of large-horned cattle increased by 27 grams and amounted to 492 grams, and for hogs these figures were 11 and 339 grams, respectively. The weight conditions of the animals that were sold were somewhat improved.

But still this was not enough to fulfill the commitments. As before, there are large contrasts in the work of various farms. Not all of them are properly mobilizing forces to carry out the tasks set for workers of the animal husbandry branch by the November (1981) Plenum of the CPSU Central Committee and the fifth plenum of the Central Committee of the Communist Party of Belorussia. This was discussed at a recent meeting of the aktiv of the Communist Party of Belorussia.

It was especially emphasized that this is not only a matter of feeds, but also one of the quality of the work. And this is true. If one analyzes the figures from the summary from the quarter along with those that were published for preceding months one cannot but note how the rayons changed in terms of the places they held. For example, for a long time Dubrovenskiy Rayon was regularly at the bottom of the list in the summary with respect to milk and meat. Now it has not only eliminated its arrears in the production of milk and in the productivity of the cows, but has also risen above the level of the first quarter of last year.

The improvement took place because of the fact that the party raykom, rayispolkom and agricultural administration learned their lessons from the criticism and began to handle the wintering of livestock more responsibly and investigate more concretely the work of the farms locally. The kolkhozes and sovkhozes began to put reserves to work better. One of them, the most significant one, is preparing feeds before issuing them to the animals. On the one hand this led to more efficient and economical expenditure of them, and on the other, to increased productivity of the animals. Of course, an equal influence was exerted by dealing with questions of competition among people and their moral and material incentives for high indicators in labor.

At the same time Shklovskiy Rayon dropped to last place even though in the recent past these animal husbandry workers held firm average positions. And there is no way to regard what happened as accidental. In Shklovskiy Rayon the forage supplies are better than in Dubrovenskiy. One can say that the farms are better provided with facilities, technical equipment and personnel. Consequently, it is a matter of the level of management of the branch and the negligent attitude on a number of kolkhozes and sovkhozes toward the introduction of progressive technologies for the winter stabling maintenance of the livestock. We are speaking primarily about poor information about effective programmed distribution of feeds that are being produced and the slow changeover of the dairy herd to the flowline-shop system of maintenance.

There have been serious lapses on the farms even of certain distinguished rayons, although they are in the "upper echelons" of the summary. For example, there is a great contrast in the indicators of the farms of Kopyluskiy Rayon. While on the Timkovichskiy Sovkhoz the milk yields and weight gains of the animals increase from month to month, on the Sovkhoz imeni Dzerzhinskiy they have declined. The reasons for the arrears are not studied in depth and the experience of the leading workers is not disseminated, as a result of which the common cause suffers and less than the possible amount of farm products are delivered to the state.

The wintering of the livestock is coming to an end. As was noted, the first quarter did not produce the desired results in animal husbandry. In some places not only did the milk yields and weight gain decrease, but there was even a reduction in the number of animals that produce young. During January-March in Vitebskaya Oblast there were 1,900 fewer cows, in Minskaya--1,500, and in Mogilevskaya--1,000 fewer cows. The hog farms that were unjustifiably eliminated at one time are being restored inadmissably slowly. And as was emphasized at the party aktiv, each enterprise should have a hog farm.

One cannot be reconciled to cases where young animals die. Preserving all the young, selecting the best breeding animals for reproduction, and maintaining these animals under the proper conditions constitute a task of primary importance. It is precisely because of the shortage of full-value replacements that the number of cows decreases on certain kolkhozes and sovkhozes. A good deal depends on augmenting the dairy herd with highly productive first heifers from specialized farms. The interruptions in their work can in no way be justified, and they come about only because of poor coordination in the activity of interfarm associations.

In the time that remains before the cattle are put out to pasture it is necessary to take all measures for correct utilization of the residual feeds. They should be distributed in the way that this is done on the Pobeda Kolkhoz in Stolbtsovskiy Rayon. The kinds of forage and the volumes for each meal and each day are determined for all groups of livestock. The programmed feeds must be processed in mixtures and enriched. There are additional reserves here: they prepare conifer paste and grind the straw of legume crops. All possibilities of losing forage between the storehouse and the feeders are completely eliminated. These measures make it possible to maintain high productivity of the animals. All the herds go out to pasture in good nutritional condition so that they do not need time to be nourished on a green ration.

The final stage of wintering should be especially well organized everywhere. It is necessary to arrange things in such a way that none of the livestock on any of the farms are emaciated. One must not forget that if they are this will lead to considerable losses of products during the initial period of pasturing of the animals. It is important not to allow a single feed shop, a single feed kitchen or a single feed platform to stand idle now. Their work should be strictly supervised.

And one more requirement which is frequently ignored on many farms. When distributing residual forage it is necessary to retain a reserve of coarse feeds for the livestock during the transition period--from wintering to pasturing. It is difficult to overestimate the importance of this for with this reserve the animals do not experience a sharp change in feeding and they produce more products. The workers of the Brestskiy Sovkhoz in Brestskiy Rayon are handling this correctly. They have saved up chopped straw and part of the hay for the transition period.

It is the duty of animal husbandry workers of each farm even in the current quarter to begin the production and procurements of products at the earmarked rates. They should do everything necessary so that the pasturing period is really a period with a large amount of inexpensive milk and meat, which is decisive in fulfilling socialist commitments.

Of course any success--large or small--depends on the conscientious and creative attitude of the people toward their work. Therefore work with animal husbandry personnel and concern for better conditions for their labor and life constitute a primary necessity. Each animal husbandry worker should have great mastery. During the summer period the herdsmen come to the fore. One cannot be indifferent to the people who take the herd out to graze or to how intelligently the grass is utilized. Experienced specialists are called upon to select motivated workers and to teach them the enclosure and portion methods of pasturing. Supply organizations, and especially sel'khoztekhnika, must not stand to the side of all matters on the farms. It is important that the farms be well provided with electric fences and other materials for building on pastures, and there should not be interruptions in the servicing of farm mechanisms.

A large reserve in procuring animal husbandry products is to purchase milk and meat from the population. An extremely favorable time is approaching for increasing the productivity of livestock that are kept privately. Whether or not pastures have been allotted for these animals everywhere, whether they are adequate in each village and brigade of dairymen, and whether they are provided with transportation and containers--all this must be thought about and decided ahead of time.

The republic has quite a few kolkhozes and sovkhozes that are carrying out animal husbandry on a far level. Such farms fulfill their commitments precisely. But it is not only a matter of determining the winners, but of organizing dissemination of the experience of advanced workers, explaining the reasons for the failures of the backward collectives and finding ways of surmounting them. These constitute one of the most important tasks in the local work of party committees.

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RESOURCES OF SUMMER PERIOD FOR LIVESTOCK DEVELOPMENT

Moscow ZHIVOTNOVODSTVO in Russian No 5, May 82 pp 2-5

/Article by P.I. Korneyev, chief of the Main Administration for Animal Husbandry of the USSR Ministry of Agriculture: "More Complete Use of the Opportunities Afforded by the Summer Period"/

/Text/ During a festive meeting held in Tashkent, Comrade L.I. Brezhnev underscored the need for increasing considerably the volumes of agricultural production and ensuring accelerated development for livestock production.

The kolkhozes and sovkhozes are presently completing a very complicated and important period in livestock production -- the wintering of the livestock. With each passing day, the front of the spring-field operations continues to advance farther north, with many farms having already converted their animals over to pasture maintenance.

A chief task of the agricultural organs, the leaders and specialists of kolkhozes and sovkhozes and all farm workers is that of converting the animals over from indoor winter maintenance to pasture maintenance in an organized manner, improving the feeding and achieving growth in the productivity of the livestock.

The unfavorable weather conditions experienced last year in a number of rayons throughout the country complicated the carrying out of the livestock wintering operations. However, owing to the assistance provided by the state and the great organizational work carried out on the kolkhozes and sovkhozes, improvements took place in the preservation of the animals and increases were recorded in the numbers of large-horned cattle, including cows. There are now more poultry than there were last year. Considerable increases have taken place in the number of large-horned cattle in the Moldavian SSR, Lithuanian SSR, Uzbek SSR and Turkmen SSR and in hogs in the Uzbek SSR, Tadzhik SSR, Georgian SSR and the Armenian SSR. Increases have been realized in the numbers of sheep and goats on kolkhozes and sovkhozes in the Uzbek SSR, Turkmen SSR, Armenian SSR, Kirghiz SSR, Lithuanian SSR and some other republics.

The quality indicators for livestock production were improved in a number of republics during the winter period. The weight of one head of cattle sold for meat purposes increased on farms in the Armenian SSR (by an average of 24 kilograms), Azerbaijan SSR (by 13 kilograms) and the Uzbek SSR (by 9 kilograms). The kolkhozes and sovkhozes in the Kirghiz SSR sold hogs to the state at an average live weight of 123 kilograms, Tadzhik SSR -- 119 kilograms and the Uzbek SSR -- 113 kilograms. Increases were recorded in the productivity of cows on livestock production farms in the Uzbek SSR, Armenian SSR and the Belorussian SSR.

In directing the efforts of the agricultural workers towards completing the wintering operations, every attempt must be made to ensure the development and implementation on each farm of specific measures aimed at increasing the production of livestock products during the summer period of this year. The lag which has developed in the production of goods must be eliminated and the fulfillment of the state plans for 1982 ensured. Summer is known to be the most favorable period for obtaining high milk yields and weight increases in the livestock. During the pasture period, the kolkhozes and sovkhozes, by making extensive use of cheap feed, obtain more than 55 percent of their annual volume of milk production. Thus one of the chief tasks is organizing the spring and summer maintenance of cows based upon leading experience and scientific achievements. This will make it possible to obtain more output based upon green feed and thus sharply reduce the consumption of concentrates.

This requires an improvement in the structure of the sowing areas, an increase in the effectiveness of use of arable land for forage crops, greater productivity from the natural feed lands and long-established cultivated pastures and haying lands and the introduction of efficient systems for the green production line, while ensuring that their structure calls for an increase in the sowings of rape, oil-producing radishes and other high protein crops having short growing seasons. An expansion should take place in the areas used for repeated sowings of forage crops.

Special importance is attached to the timely formation of cattle herds, to carrying out the required zooveterinary treatment work, to completing the construction of camps and sites for the maintenance of large-horned cattle, hogs and sheep and to equipping areas for the watering of the livestock.

Schedules for the rational use of pastures should be composed for each farm, experienced workers should be selected for tending the livestock and the necessary cultural-domestic conditions should be created for them.

The summer period must be fully utilized for increasing the production of meat. As a result of the implementation of specialization and concentration and the conversion of beef production over to an industrial basis at the kolkhozes and sovkhozes, a considerable expansion has taken place in the scale of fattening operations and in increasing the live weight of large-horned cattle.

Natural feed lands serve as a great source for the production of feed in many oblasts of the Russian Federation, in Kazakhstan and in the republics of Central Asia and the Trans-Caucasus. In the Turkmen SSR, for example, two thirds of the livestock requirements for nutrients are satisfied by means of pasture feed. In the Kazakh SSR, the Tadzhik SSR and the Kirghiz SSR, this feed accounts for approximately 50 percent of the overall nutritional value of the rations. This makes it possible to obtain cheap meat, wool and karakul pelts. The production cost for 1 quintal of mutton on farms in the Tadzhik SSR, the Turkmen SSR and the Kazakh SSR is 20-30 percent lower than the average for kolkhozes and sovkhozes throughout the country and that for wool -- 20-50 percent lower.

However, full use is still not being made of the available potential. The proportion of pasture feed in the ration for young large-horned cattle stock was reduced from 24 percent in 1966 to 11 percent in 1980 and in a number of areas only weak use is being made of cattle fattening methods.

The extensive use of natural feed lands, especially in the steppe regions of the Kazakh SSR, the north Caucasus, the southern Urals, the Volga region, Siberia and in a number of oblasts in the nonchernozem zone is making it possible to produce a considerable quantity of cheap high quality meat with minimal expenditures of concentrated feeds. The experience of leading farms reveals that pasture feed makes it possible to obtain an increase in live weight in large-horned cattle of 140-150 kilograms, with daily weight increases of from 800 to 1,000 grams.

One of the chief reserves for increasing the production of beef is that of raising the live weight of the cattle to be sold and reducing the fattening periods. The obtaining of a live weight of 400-450 kilograms at the age of 16-18 months will make it possible to lower feed consumption per unit of output by one third.

Important tasks must be performed by the kolkhozes and sovkhozes in connection with the development of pig farming.

During the winter months of this year, fewer young pigs were obtained in a number of oblasts than were obtained during this same period last year, a deterioration took place in their preservation rate and the planned rates of growth in the number of animals were not achieved. Thus correct action is being taken on those farms where the plans call for a maximum number of offspring to be obtained during the summer period. This requires maximum preservation of the animals and the selection and mating of additional young pigs.

The summer period is favorable for the raising of hogs on cheap feeds and in simple structures of the camp type. The experience of kolkhozes and sovkhozes in Lithuania, Belorussia and a number of oblasts in the RSFSR and the Ukraine reveals that the extensive use of green and succulent feed makes it possible to ensure full-value feeding for the hogs and to reduce the consumption of concentrates.

The transfer of the animals over to camp conditions will make it possible to prepare the principal facilities for the impending wintering period in a timely manner, to clean and disinfect them thoroughly and, when necessary, to modernize them. In 1982, the plans for the Ukrainian SSR call for an expansion in the summer camps for 402,000 head, in the Kazakh SSR -- for 20,000, in Lithuanian SSR -- for 4,100 and in the Belorussian SSR -- for 3,000 head.

The sheep breeders are experiencing troublesome days at the present time -- the mass lambing of ewes, with the sheep shearing period approaching. During the pasture period, the kolkhozes and sovkhozes must fatten and sell to the state a large number of sheep at an average weight of 42 kilograms and to achieve further growth in the number of animals. In order to carry out these tasks, it will be necessary to prepare the fattening sites and the feed preparation equipment for continuous operations in a timely manner and to ensure that the feed crop rotation plans call for the production of the amount of green feed required for feeding to sheep assigned for fattening. Good grazing and fattening of the animals and maximum preservation of the young stock will promote the rational utilization of the summer pastures and the correct organization of grazing. Good preparations must be made for converting the livestock over to summer maintenance, forming up the herds, organizing veterinary-sanitary services for the animals, approving the routes and schedules for moving the sheep to the summer pastures and establishing areas along the routes for the watering and resting of the sheep.

In order to ensure the timely and organized shearing of the sheep, the time is at hand for making preparations for the work to be carried out at the shearing stations, providing them with the necessary equipment, training the shearing personnel and thereafter shearing all of the sheep as rapidly as possible. If the sheep shearing is well organized, the wool yield per sheep can be increased by an average of 50-100 grams, an increase for the country on the whole of more than 5,000 tons of wool. An increase of 7,000-8,000 tons of lamb's wool can be achieved through the timely shearing of young stock in the early stages following their birth.

In order to fulfill their plan for selling milk to the state, the kolkhozes and sovkhozes must obtain an average of no less than 1,260 kilograms of milk per cow during the May-September period, or increase the milk yield by 110 kilograms above that for last year's summer period. This is a complicated but nonetheless realistic task. Such cow productivity was earlier obtained during 1974, 1977 and 1978.

During the period devoted to completing the livestock wintering operations and converting them over to summer maintenance, maximum attention must be given to those problems concerned with the feeding and maintenance of the livestock. The supplies of winter feed on each farm must be utilized so as to produce a maximum return and there should be no interruption in the feeding of the animals.

Fine indicators of productivity are being achieved on those farms where there is a high level of organization for all operations, where the daily routine is followed in a strict manner and where use is being made of a proper combination of livestock grazing and additional nutrition. The farm leaders and specialists must exercise constant control over the carrying out of measures aimed at converting the livestock over to summer maintenance and ensure that the dairy herd has green feed in quantities which will guarantee high milk yields. A requirement exists in all areas for sowing forage crops in the vicinity of the farms and summer livestock areas, for completing the spring work of cleaning up the pastures, cutting down small hummocks of grass and undergrowth and carrying out the necessary harrowing and liming work.

During the past few years, at kolkhozes and sovkhozes throughout the country and especially in the Baltic republics, the Belorussian SSR and in Leningrad, Moscow and other oblasts of the RSFSR, an increase has taken place in the number of highly productive cultivated pastures. Many years of experience underscore their high economic effectiveness. At leading kolkhozes and sovkhozes in the Estonian SSR, cultivated pastures furnish 7,000-8,000 feed units per hectare, with a content of 110-120 grams of digestible protein per feed unit.

A scientifically sound system for dairy animal husbandry on farms in the Lithuanian SSR requires that the grass of cultivated pastures, during the summer, satisfy no less than 70-80 percent of the overall nutrient requirements of the animals. The remaining 20-30 percent of the requirement is satisfied by crops from the green feed production line, with minimal use being made of concentrated feed. A correct regime for the use of pastures, thorough tending of them, applications of mineral and organic fertilizer top dressings, the cutting down of grass residues and the organization of waterings all serve to raise the productivity of pastures and ensure stable and high productivity for the animals, with comparatively low output production costs.

The experience of organizing indoor maintenance for livestock during the summer is deserving of attention in regions where a high level of land plowing work is carried out. In the final analysis, the selection of the summer maintenance method for livestock is dependent upon many specific conditions, which must necessarily be taken into account: the size of the farms, their distance from the pastures and fields of a fodder crop rotation plan, the livestock maintenance technology, the availability of feed harvesting equipment, roads and so forth.

Correct action is being taken by those kolkhoz and sovkhoz leaders and specialists who are creating the conditions required for organizing early grazing for the animals. Thus, more than 16 percent of the cultivated pastures in the Latvian SSR were sown in cock's foot, thereby making them available for use in May and on farms in Krymskaya Oblast extensive use is being made in April, for feeding to the livestock, of green feed obtained from sowings of winter crops.

In those areas where continuous pasture maintenance will be organized for the cows, a requirement will exist for studying those problems concerned with organizing machine milking and checking upon the readiness for operation of the mobile milking units and equipment for the initial processing, storage and transporting of milk, such that there will be no deterioration in the quality of the milk to be sold to the state during the pasture period.

Great importance is attached to supplying the animals with water and also mineral additives on a continuous basis. A check should be carried out in advance on the status of the water supply sources, they should be in proper working condition and measures should be undertaken to ensure that the animals are supplied with salt, mixtures of microelements and feed additives.

The proper organization of herd reproduction operations plays a great role in increasing the production of goods and lowering their production costs. Unfortunately, there are still many farms where a high level of barrenness in the cows is being tolerated and the yield of young pigs and lambs is low. In the Georgian SSR, for example, the calf yield during 1981 was only 68 head per 100 cows and thus it was no accident that the average milk yield per cow was only 1,604 kilograms of milk. Very few calves are being obtained at kolkhozes and sovkhozes in Smolenskaya and Ryazanskaya Oblasts or in the Kalmytskaya and Tuvinskaya autonomous republics. The experience of leading farms and workers testifies to the great opportunities that are available on any farm for lowering considerably the barrenness in the brood stock. The kolkhozes and sovkhozes in Ivano-Frankovskaya Oblast, the Moldavian SSR and the Tatarskaya ASSR are annually achieving stable and high indicators in reproduction of their herds.

The workers on livestock production farms, the zootechnicians and veterinary specialists must maintain a strict accounting for each cow and heifer of mating age, sow and ewe, they must establish the true reasons for rutting and barrenness and they must undertake the measures required for ensuring that all cows and heifers less than 18 months of age become pregnant and produce offspring in a timely manner. An inspection carried out at a number of farms where there is a high rate of barrenness in the cows has revealed that one of the principal reasons for this, in addition to shortcomings in the feeding and maintenance of the animals, is poor organization of artificial insemination operations. The specialists attached to kolkhozes, sovkhozes and state stations for breeding work and the artificial insemination of animals are directly responsible for undertaking all of the measures required for eliminating these shortcomings.

The further development of livestock production is dependent to a decisive degree upon increasing the production of diverse types of high quality feed. It is wrong to state that insufficient attention is being given to the problem of feed production. However, animal husbandry is still not being supplied with adequate amounts of feed. At many kolkhozes and sovkhozes, leading technologies and the achievements of scientific-technical progress are being introduced into operations only slowly in behalf of feed production. Very few good quality storehouses are being erected for forage purposes and this is resulting in great losses and in a deterioration in the quality of the forage. At a number of kolkhozes and sovkhozes, the grain for feed purposes is not being utilized in an efficient manner.

One of the chief reasons for the great over-consumption of feed for the production of livestock products is the low level of feeding and the deficit of protein in the animal rations. Thus an urgent and priority task for this year must be that of making more complete use at the kolkhozes and sovkhozes of all opportunities for increasing the production of feed by raising the cropping power of the forage crops, introducing progressive technologies for their procurement and storage and improving the natural haying and pasture lands.

All-round programs have been prepared at the kolkhozes and sovkhozes for developing feed production during the Eleventh Five-Year Plan. At the present time, a check is being organized on their fulfillment at each farm and the necessary measures are being taken to ensure the carrying out of the tasks for the production of hay, haylage, silage and fodder root crops -- grain forage and other feeds.

One very important reserve for increasing the production of meat, milk and other products -- the private plots of the population -- must not be overlooked. Tracts of land for the procurement of hay and grazing of livestock must be made available in the established manner to kolkhoz members, manual and office employees, pensioners and other citizens maintaining large-horned cattle, sheep or goats on their private plots. They must be provided with assistance in acquiring young agricultural animals and poultry and in making zooveterinary services available for the animals.

During 1981, 16.5 million young pigs and 631 million head of young poultry stock were sold to the population. The measures undertaken made it possible to increase the number of animals on the private plots of citizens. During last year alone, the number of large-horned cattle in this sector of the economy increased by 275,000 head, including 80,000 cows, by 200,000 hogs and by 342,000 sheep.

The kolkhozes and sovkhozes are presently carrying out a great amount of work in connection with concluding contracts with the population for the raising of livestock and poultry and for procuring surplus livestock products. Measures should be undertaken aimed at ensuring that each kolkhoz and sovkhoz, regardless of its specialization, organizes its own livestock production farms so as to be able to satisfy the requirements of the kolkhoz members and the manual and office workers for meat, milk and eggs.

An object of special attention among the farm leaders and specialists must be that of creating good working and living conditions for the livestock breeders. In the interest of improving livestock production, there must be equally as much concern displayed for satisfying the housing and domestic needs and the increasing cultural requirements of the farm workers as there is for the development of production operations. Constant improvements must be achieved in the system of moral and material incentives for labor, incentives aimed at developing high production indicators and instilling a conscientious and creative attitude towards labor in the personnel. Higher results are being achieved as a rule in those areas where these problems are being resolved on an all-round basis.

The organized carrying out of the summer maintenance period for the livestock and the achievement of high productivity in the livestock and poultry are making it possible for the farm workers to achieve successes in the socialist competition for the dynamic development of livestock production, increases in the production of meat, milk and other products and successful fulfillment of the historic decisions handed down during the 26th CPSU Congress.

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LIVESTOCK

CURRENT PROBLEMS OF ESTONIAN LIVESTOCK BREEDERS DISCUSSED

Tallinn SOVETSKAYA ESTONIYA in Russian 15 May 82 p 1

/Article: "To Make up For What Has Been Neglected"/

/Text/ It is now a difficult time for the republic's livestock breeders. Feed reserves, which are limited as it is, are coming to an end and, moreover, the weather has postponed the usual time when herds go out to pastures. Some rise in the temperature in the last few days has accelerated the growth of grass and now herds should already be on grazing land everywhere.

More than one-half of the annual volume of milk is produced during 5 months of summer keeping of livestock. Great hopes are now pinned on summer months, because it is necessary to make up for the minus kilograms of milk yield that accumulated during the wintering period.

The lag in milk yields is considerable. On the average, 953 kg of milk per cow were obtained on the republic's kolkhozes and sovkhozes as of 1 May, which was 175 kg less than during this period a year ago. In April average monthly milk yields totaled 281 kg and last April, 326 kg. Milk yields were reduced in all rayons. In 4 months the highest milk yields were ensured in Rakvereskiy Rayon--1,055 kg (170 kg less than last year). This rayon is followed by Pyarnuskiy and Paydeskiy Rayons. The lowest milk yields were obtained on farms in Khaapsaluskiy Rayon (802 kg). Milk yields were most of all reduced on kolkhozes and sovkhozes in Raplaskiy Rayon (-287 kg), of which -72 kg accumulated in April alone. The rayon is acutely short of feed, but in terms of a unit of livestock there are no fewer fodder units here than, for example, in Pyarnuskiy Rayon, where milk yields in April were reduced by only 27 kg. This points directly to organizational shortcomings in the work of the people of Raplaskiy Rayon.

As of 1 May the republic's farms sold 21 percent less milk to the state than during this period last year. It is necessary to do everything to increase milk production on every farm in June-July to last year's level.

We have farms where milk production is more successful than last year. They include the Taevaskoya Kolkhoz in Pylvaskiy Rayon, the Vykhandu Kolkhoz in Vyruskiy Rayon and the Saare Kolkhoz in Yygevaskiy Rayon and the Tystamaa, Vynnu and Mooste sovkhozes. Every section of work is thought out carefully here and success is not late in coming.

In order to make up for the drop in milk yields, it is necessary to obtain an average of 390 to 400 kg of milk per cow during each of the forthcoming months. This is not an easy task. It is necessary to apply maximum efforts to attain such high results.

On every farm it is necessary to carefully analyze all the problems connected with summer keeping of livestock. Interruptions in the supply of summer feed for large farms were observed during previous years. On kolkhozes and sovkhozes conscientious people should be put in charge of feed procurement and all the necessary equipment should be placed at their disposal. Party organizations should place the problems of summer production of milk under their permanent control.

During summer months it is necessary to see to it that the stock of cows is increased. As compared with the beginning of the year, in summer every farm should have 3 to 4 percent more cows. This task is within the powers of every farm. As of 1 May, in practice, the republic's farms had as many cows as last year and Ygevaskiy, Pylvaskiy, Kingiseppskiy, Paydeskiy and Pyarnuskiy Rayons, even more. The decrease in the herd population on kolkhozes and sovkhozes in Kokhtla-Yarveskiy and Rakvereskiy Rayons should be considered unsubstantiated.

In summer it is also necessary to improve the keeping of young stock. This guarantees the future success of milk and meat production. Freshly mowed grass and succulent feed are the best feed for young fattening bulls on ranches. Nor should this feed be excluded from the ration of hogs and is obligatory in it along with concentrates.

There is a great deal of trouble with the production and procurement of meat. On 1 May the republic sold 13 percent less livestock and poultry to the state than last year. The sale of meat increased only in Khiyumaa and Raplaskiy Rayon. However, owing to the shortage of feed many farms sold underfattened livestock there. For example, kolkhozes and sovkhozes in Raplaskiy Rayon delivered hogs weighing only 68 kg to meat combines.

The average weight of large-horned cattle sold to the state in 4 months was only 398 kg and of hogs, 84 kg. The average sale weight of hogs increased slightly in April, totaling 89 kg. Feed reserves are now being replenished with grass and, therefore, underfattened livestock must no longer be sold.

On 1 May kolkhozes and sovkhozes had more large-horned cattle and somewhat less other livestock than 1 year ago. In order to fulfill the annual assignment for meat production as best as possible, in summer it is necessary to greatly increase the average daily weight gains in fattening animals.

Problems connected with herd reproduction are on the agenda. Whereas in Valgaskiy, Vil'yandiskiy, Kingiseppskiy and Khiyumaaskiy Rayons more cows and heifers were mated than last year, in Khar'yuskiy, Khaapsaluskiy and Vyruskiy Rayons, much less. In the next few months it is necessary to see to it that heifers are mated additionally. Kokhtla-Yarveskiy, Tartuskiy and Vyruskiy Rayons did not fulfill their own plans for hog mating in April. Such a situation must be rectified, because right now it is necessary to think about the fulfillment of assignments for meat production next year.

This year 14,000 (26 percent) more hoglings were sold to the population than last year. The production of livestock products on private subsidiary farms was increased. It is necessary to help the population at all levels to better organize the production of milk and meat on private farms.

The production of eggs was reduced by 1 percent. Nevertheless, their procurement increased by 0.3 percent. In 4 months every laying hen has now produced an average of 80 eggs--1 less than during the same period last year. The shortage of protein feed is the reason for the decrease in egg production. During the forthcoming period, along with an increase in the number of laying hens, it is necessary to find a possibility of making up for the lag that has arisen in egg production.

Farmers also have many problems now. Although principal attention on farms is directed toward a successful conclusion of the sowing campaign, animal husbandry problems must not be disregarded. During the forthcoming months herd keeping problems must be solved so that an increase in the production of milk, meat, eggs and other products is ensured,

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CEMA COOPERATION IN AGRICULTURAL TECHNOLOGY DISCUSSED

Minsk SEL'SKAYA GAZETA in Russian 18 May 82 p 3

/Article by V. Petrunya, TASS commentator: "Good Field"/

/Text/ The farmer is accustomed to evaluate the ear according to how full its weight is and how rich in grain it is. The ear of the 350 varieties and hybrids that have become firmly established on the fields of fraternal countries forming the international organization of the Council for Economic Mutual Assistance during the last decade is being filled with high-quality grain.

It is not customary to place tablets with the genealogy of a variety on fields. In the final analysis the result of the harvest depends not only on the genes of seeds. However, a good variety is the foundation for the harvest. If we turn to the genealogy of the 350 new settlers of our fields, the common feature of their "biography" can be noted--all of them, figuratively speaking, were born on the field of unselfish cooperation among the breeders of CEMA countries.

When the regular meeting of the CEMA Executive Committee was held in Moscow last October, this fact was cited as evidence that such a combination of efforts by scientists and specialists is highly productive.

The meeting stressed that a policy of intensification of agriculture, its retooling, chemicalization and land reclamation was systematically followed in our country in recent years. At the same time, the results of economic and scientific-technical cooperation in the agroindustrial sphere were utilized widely. The advances in joint research and the exchange of experience in the area of plant breeding, seed growing, pedigree animal husbandry, veterinary science, mechanization, chemicalization and forestry were considered significant.

Deputy heads of government took part in the meeting. They noted that special attention should be paid to the development and introduction of modern technologies in animal husbandry and plant growing and to a reduction in the losses of agricultural products at all the stages of their production. Cooperation should also be subordinated to the task of a fuller satisfaction of the needs of animal husbandry in CEMA countries for fodder protein. Members of the executive committee considered it necessary to intensify the mutual exchange of experience in the organization of agricultural production.

Specialists--members of the CEMA Permanent Commission for Cooperation in the Field of Agriculture--gathered at a "round table" 2 months later. Having examined the wide range of information on various problems, they also turned to the results of scientific research in the field of agriculture and forestry completed in 1980. The commission considered it advisable for the interested countries to utilize these results for introduction into production.

We would like to draw attention to the recommendatory nature of decisions: Neither the executive committee, nor commissions, nor other CEMA bodies accept directive, obligatory principles.

The long-term specific program for cooperation in the field of agriculture and the food industry is also an initiative document based on the coordination of the proposals advanced by countries. Like other long-term specific programs for cooperation it is not a supranational plan and is not of a directive nature. The program, which was approved at the 32d meeting of the CEMA session in 1978, became a kind of practical platform for joint actions in the solution of important problems in one of the key spheres of material production. It aims at the utilization of the advantages of international socialist division of labor for a fuller satisfaction of the population's rational needs for the basic types of foodstuffs and for the creation of the necessary reserves.

Let us take one of its sections--cooperation aimed at the development of the material and technical base of agriculture. Specialists and scientists are working on the development and mastering of the output of a family of tractors of a capacity of 150 hp and more with a set of agricultural machines for them. Specialization and cooperation of production serve as the basis for this. Highly productive self-propelled grain, potato and other harvesting combines and machines and equipment for animal husbandry and fodder production are also being developed.

What does such a combination of efforts give? Here is one of the indicators of its efficiency: According to the calculations of experts, as a result of the introduction of highly efficient machines developed according to the CEMA program, labor productivity in harvesting operations is to be increased 1.5- to 2-fold.

The breeding of promising varieties and hybrids of various crops, measures for the chemicalization of agriculture and increase in cotton production--this is by no means the full list of problems, to the solution of which the specialists, scientists and production workers of CEMA countries pay attention. The development of new breeds of animals and poultry most fully meeting keeping conditions on industrial-type ranches is a special concern. Breeders have embarked on a purposeful development of the gene pools of the best breeds of livestock. The results will be widely used in common interest.

The production of vegetables and fruits, including citrus fruits, in fresh and processed form is to be widely developed in countries with a favorable climate. For example, by 1990 the deliveries of fresh fruits from Hungary to the Soviet Union are to be increased to 330,000 tons.

Cuba will deliver up to 2.4 million tons of citrus fruits to European CEMA countries.

Although the results of joint developments and achievements are not of a directive nature, all the countries of this camp widely utilize their benefits. Economists find a real definition of these benefits. For example, according to calculations, the implementation of measures in the field of the food industry will make it possible, in addition, to annually obtain 600,000 tons of sugar (from sugar beets), about 30,000 tons of vegetable oil, 800,000 tons of fresh-water fish, almost 1 million tons of new food protein products and up to 3 million tons of enriched protein feed.

The good field of cooperation yields good fruits. The task is to increase this "harvest" and to gather it without residues.

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AGRO-ECONOMICS AND ORGANIZATION

UL'YANOVSKAYA OBLAST SUBSIDIARY INDUSTRIAL ENTERPRISES DISCUSSED

Moscow IZVESTIYA in Russian 30 Apr 82 p 2

[Article by I. Kuznetsov, first secretary of the Ul'yanovskaya CPSU Obkom: "Plant and Field"]

[Text] The central farmstead and production base of the Sovkhoz imeni XXII s"yezda KPSS is located in the village of Ozerki. In recent years hundreds of people have visited here: participants in oblast and rayon seminars and representatives from Penzenskaya and L'vovskaya Oblasts who are competing with us. All are invariably attracted by the good organization of things, the results that have been achieved and the concern for human labor.

To begin with, a couple of figures. The average annual productivity of grain crops is 30 quintals per hectare, potatoes--about 200 and vegetables--about 400 quintals per hectare. The annual milk yield per cow is more than 4,000 kilograms. The profitability of production is more than 40 percent.

In recent years alone they have constructed more than 120 apartments with all utilities. There are a secondary school, a house of culture, a children's combine, extensive medical facilities, stores and a consumer services combine.

The sovkhoz annually produces about 3,500 tons of milk, up to 2,000 tons of vegetables and greens, and about 8,000 tons of potatoes.

The farm we are discussing is a subsidiary farm. It is a subdivision of the Dimitrovgrad Scientific Research Institute of Atomic Reactors, its "green" shop.

The successes of this subsidiary farm (or, as they are now more and more frequently being called for short, podkhoz) convincingly show how productive and profitable a close union between industrial and agricultural production can be.

The example that was given is not the only one. In recent years more and more industrial enterprises of the oblast are setting up their own subsidiary agricultural production. And, as a rule, their activity is successful.

In the oblast there is a small shipyard of the Volga steamship line in the village of Kriushi. Last year, on the initiative of the party organization in the directorate of the plant, a subsidiary farm was created here--a small animal husbandry farm for meat production. The party raykom and rayispolkom approved the initiative but at the same time they advised the plant to create a commercial dairy farm as well. They rendered the necessary assistance. Through their own efforts the ship repairmen constructed a mechanized feed shop on the farm.

The plant directorate and party organizations set the task of increasing milk production to 2,500-3,00 quintals and meat production to 100 quintals in the next year or two. It was also decided to create a small hog farm in order to provide workers with young hogs for fattening. The plant is now asking to be allotted a little land for raising feeds. All of it will be irrigated.

A year and a half ago in a suburb of Ul'yanovsk they put a mechanized complex into operation for fattening 7,200 hogs. It was constructed throughout the efforts of 28 industrial, construction and transportation enterprises of Ul'yanovsk. The general contractor was SMU-20 of the Rostorgstroymontazh trust. The construction was done with a loan from the Stroybank. The animals here are fattened on food wastes. Last year this farm delivered about 500 tons of meat to the dining rooms of the plants and factories in the city.

And this year the collective's commitments envision obtaining 800 tons of pork--36 percent more than last year.

Since the fattening of hogs on food wastes is an issue of great importance, we are setting the goal of constructing the same kinds of complexes in Dimitrovgrad and other cities of the oblast, and also in Zavolzhskiy Rayon of Ul'yanovsk. It is also necessary to utilize more effectively the small fattening points of the workers' supply department of the Ul'yanovsk cement plant, the railroad division, the forestry administration, the Dimitrovgrad automated aggregate plant and other enterprises. These fattening points can be reconstructed and mechanized without great expenditures. They now produce 180 tons of pork a year, but there is a possibility of increasing this amount 3-4-fold.

These are only individual examples that show the great reserves we have for successfully carrying out the food program. It is not difficult to imagine the additional quantity of food products that the workers would receive if each large enterprise had a subsidiary farm.

The decree of the CPSU Central Committee and the USSR Council of Ministers of 4 December 1978 and the decree of the RSFSR Council of Ministers of 15 December 1978, "On Subsidiary Farms of Enterprises, Organizations and Institutions" have contributed to further development of subsidiary farms of enterprises in the oblast. In light of these decrees the CPSU obkom and oboispolkom earmarked a concrete program for increasing the production of agricultural products on subsidiary farms.

The implementation of the program that has been earmarked is not an easy matter. For a long time the development of subsidiary farms was considered to be a secondary concern. A majority of these farms are small and, as a rule, maintain from several dozen to hundreds of head of hogs on fattening or have small hothouses. The ministries and departments sometimes do not even know of the existence of these farms and, consequently, do not render them assistance.

Plots of land with an overall area of more than 8,000 hectares have been allotted to more than 60 enterprises and organizations. The oblast has organized and is organizing new subsidiary farms.

I wish to emphasize especially that a good deal depends on the initiative and enterprisingness of those who are directly engaged in the production of agricultural products. Sometimes the conditions are identical but the results vary. Take, for example, Ul'yanovskiy and Maynskiy Rayons. In the former many industrial enterprises have set up subsidiary farms. The cement plant, the textile combine, the rayon consumers' cooperation and the plant for reinforced concrete items have their own hog farms. There are about 1,200 hogs and large-horned cattle on fattening. The dairy farm is producing products. The subsidiary farms were created because of the enthusiasm and persistance of the managers of industrial enterprises and the assistance and support from local party and soviet agencies. None of them expected facilities that were already ready and they did not count only on feed that was brought in. The rayon took advantage of the most varied possibilities. For example, workers of the consumers' cooperative adapted an old, discarded farm building for a hogsty. The cement workers are recultivating old pits and mines and are raising feed crops there. The textile combine has decided to plow abandoned gardens in the village of Dubrovka which was transferred to the sovkhoz's central farmstead and raise potatoes there for their own hog farms.

One must say that the land is used very intensively in the suburban Ul'yanovskiy Rayon. It is difficult to find "surplus" hectares. Therefore the industrial enterprises are assimilating and utilizing unsuitable land, clearing orchards that were killed by frost and creating irrigated pastures. Sometimes this is done in conjunction with kolkhozes and sovkhozes--on the basis of mutual existence. Incidentally, such cooperation and such joint utilization of the capabilities of industrial enterprises and agriculture seem very promising to us.

Now about one problem that is of no small importance. Of course the main task to the development of subsidiary farms is the creation of modern, highly mechanized farms and complexes that are equipped with the necessary technical equipment. This also includes intensive, highly mechanized work in fields where the necessary land is available. Here is a broad possibility for cooperation of funds, efforts and capabilities of enterprises under various departmental jurisdiction. But it seems that one should not shrug one's shoulders at the modest but useful efforts in this manner. For instance the small timber industry farm, the factory village, the house of recreation, the school, the tekhnikum and so forth. Why can they not have living things and raise vegetables and root crops? There is no need for large capital investments here; the only requirement is to utilize existing capabilities intelligently. A custom has been established in this same Ul'yanovskiy Rayon. Rural schools raise potatoes, cabbage and carrots on their own plots and also breed rabbits. They have equipped small storehouses and cellars where the products are stored.

It seems that in the development of subsidiary farms it is extremely important to be realistic: not to be attracted by megalomania, but not to stoop to primitivism either. Conditions are different everywhere and standard decisions cause only harm here. It is necessary to consider problems and take advantage of possibilities realistically. It is precisely with this approach to the matter that we conducted the oblast seminar of managers of industrial enterprises on the subsidiary farm of the ship repair plant. It was important to show and prove that each enterprise can and should make its own contribution to solving the statewide problem--providing people with as many food products as possible. But what should be raised, in which amounts and through which efforts--these, it seems, must be determined locally. The answers are more evident there.

Another problem ensues from what has been said, one which is little discussed but which is of essential importance. Since the majority of subsidiary farms still produce limited amounts of agricultural products and sometimes minimal amounts their workers need specialized mechanisms and machines. For instance, a small universal orchard and garden tractor with a set of instruments for performing the most varied jobs.

The oblast has now clearly outlined the immediate prospects for the development of subsidiary farms. In keeping with the suggestions of enterprises and organizations, under the current five-year plan it is planned to organize seven large subsidiary farms. And there will be a total of more than 70 of them in the oblast.

The organization of new subsidiary farms is not only an internal affair of the oblast. We have many industrial enterprises and organizations which belong to union and union-republic ministries and departments. But the subsidiary farms have far from everything. They need assistance from the ministries as well.

The managers of a number of enterprises are persistantly demanding lots of land not far from the city. But there is no empty land here. It is unreasonable to give the subsidiary farms plowed fields belonging to sovkhozes and kolkhozes which are already producing products. After all, one cannot increase the production of food products in one place at the expense of reducing this production in another place. It is necessary to seek out additional possibilities. The assimilation of unsuitable land, the recultivation of pits and mines, and returning each hectare to a productive condition--here is probably the most efficient and reasonable task.

There are also other problems. Certain ministries show little concern for allotting technical equipment or updating the machine and tractor fleet of the subsidiary farms of their enterprises.

It is also necessary to improve the planning of the production activity of the subsidiary farms. For many of them are essentially without owners: the ministries and departments do not even establish production plans for them.

In the press and in speeches of party, soviet and economic workers that are devoted to problems of the development of subsidiary farms they correctly raise the question of the need to develop standard provisions concerning subsidiary farms of enterprises, organizations and institutions. Such a legal status will increase the responsibility of the departments for the condition of the podkhozes at their enterprises and will help the local leaders to act with greater resolve, enterprise and business gumption.

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AGRO-ECONOMICS AND ORGANIZATION

CAPITAL INVESTMENT EFFICIENCY IN UZBEK AGRICULTURE

Moscow FINANSY SSSR in Russian No 5, May 82 pp 7-10

/Article by V.M. Muratkhodzhayev: "Raising the Efficiency of Capital Investments in Agriculture"/

/Text/ In the Summary Report to the 26th CPSU Congress, the General Secretary of the CC CPSU and Chairman of the Presidium of the USSR Supreme Soviet, Comrade L.I. Brezhnev, emphasized: "In the future we will allocate large-scale financial and material resources for agriculture and continue the planned conversion of this branch over to an industrial basis. But the center of gravity now -- and this is a distinctive feature of the agrarian policies during the 1980's -- is shifting over to the return from capital investments, to growth in the productivity of agriculture and to an intensification and improvements in its relationships with all branches of the agroindustrial complex."

During the years of the Tenth Five-Year Plan, measures were carried out throughout the republic for the purpose of raising the return from capital investments. These measures were aimed at strengthening the production base of construction and introducing the achievements of scientific-technical progress. A great amount of work was carried out in connection with the development of new lands and the construction of sovkhozes and other agricultural enterprises. Approximately 500,000 hectares of irrigated land were placed in operation and 1.6 million hectares of pasture land watered. Land reclamation improvements were carried out over considerable areas and better arrangements made for providing them with water. Livestock production complexes were built for the production of milk and the fattening of large-horned cattle and also poultry factories. A large number of elevators, granaries, repair workshops of Goskomsel'khoztekhnika and other installations were erected.

The large volume of construction work carried out during the 1976-1980 period le to a considerable increase in fixed capital and production capabilities and this make it possible to increase the average annual volume of gross agricultural output by 25.4 percent above that for the Ninth Five-Year Plan, against a task calling for a 22 percent increase. The average annual production of raw cotton increased by 16.5 percent, grain procurements -- by twofold, melon crops and potatoes -- by a factor of 1.6 and fresh fruit and grapes -- by a factor of 1.7.

During the 1976-1980 period, the branch's ministries and departments, financed by the republic's budget, utilized 6.76 billion rubles worth of capital investments.

Considerable capital investments were utilized for agricultural development during the Eleventh Five-Year Plan. In 1981, 1.4/ million rubles were allocated for this purpose. Just as in the past, great importance is being attached to water-supply construction work. In the Basic Directions for the Economic and Social Development of the USSR During the 1981-1985 Period and for the Period Up To 1990, an appeal is made for the continued development of the Karshi and Dzhizak steppe regions, the placing in operation of 450,000-465,000 hectares of irrigated land and the watering of 1.5 million hectares of pasture land.

Taking into account the growth in the cropping power of the agricultural crops and the productivity of livestock production throughout the republic, the plans call for: an increase of 17-19 percent in the average annual gross output volume; an average annual production of raw cotton of not less than 5.9 million tons; considerable increases in the production of grain, vegetables, meat, milk, wool and karakul pelts. The plans also call for an extensive program for further development of the logistical base for agriculture, particularly for livestock production. Livestock complexes must be built for milk production for 67,000 cows, for 110,000 head of large-horned cattle, for 594,000 head of hogs and poultry factories for 3.3 million laying hens and 82.5 million head of meat poultry.

Compared to the last year of the Tenth Five-Year Plan, the volume of capital investments for 1981 for the Ministry of Agriculture for the Uzbek SSR was increased by 150 million rubles, or by 37 percent. These resources will be employed first of all for the construction of enterprises for those branches of livestock production which furnish a rapid return -- poultry raising, pig farming.

In discussing the successes already achieved, we must not overlook our shortcomings and derelictions. The effectiveness of capital investments in many instances is lowered owing to delays in the placing in operation of individual installations. Not all of the organizations are fulfilling their plans for capital investments. For example, during 1980 12 organizations of the Ministry of Land Reclamation and Water Resources for the Uzbek SSR underfulfilled this plan by 20 million rubles and enterprises of Uzptitseprom of the republic's Ministry of Agriculture -- by 8.2 million rubles, although on the whole these ministries are fulfilling their plans for capital investments.

The combined board of directors for enterprises under construction in Khorezmskaya Oblast, two boards of directors in Samarkandskaya Oblast and so forth failed to fulfill their plans for placing fixed capital in operation. Individual poultry factories and a number of other installations of the Ministry of Agriculture for the Uzbek SSR are being turned over for operation on an untimely basis. For example, in 1980 five cotton growing sovkhozes failed to cope with their plan for placing fixed capital in operation (5.1 million rubles worth, or 21.1 percent) and eight poultry factories fulfilled their plans by only 25.5 percent.

These same shortcomings were noted in 1981. During 9 months of last year, for the republic's Ministry of Land Reclamation and Water Resources, the plan for capital investments was under-fulfilled by 14.3 million rubles by nine boards of directors and the placing in operation of fixed capital -- by 32.5 million rubles by eight boards of directors. During this same period, for the Ministry of Agriculture for the Uzbek SSR, a livestock complex for the production of milk for 400 cows at the

Zeravshan Sovkhoz in Samarkandskaya Oblast and also capabilities on farms in Tashkentskaya Oblast were not placed in operation in a timely manner.

Capital investments are being dispersed among numerous construction projects. When distributing the capital investment limits among individual projects, a large number of newly begun construction projects are being included in the plan. And this is taking place at a time when not all of the carry-over underway construction projects have been provided with the resources required for their timely completion. For example, the Fergana Inter-kolkhoz Council of Minvodkhoz /Ministry of Land Reclamation and Water Resources/ included in its 1981 plan 28 carry-over underway projects which had not been provided with 5.8 million rubles worth of appropriations (based upon the schedules established initially) and it planned 37 new projects representing a capital investment volume of 14.3 million rubles.

Board of Directors No. 3 in the Karakalpakskaya ASSR was 1.3 million rubles short for three carry-over projects and at the same time it included in its 1981 plan 39 new projects for 8.8 million rubles. For Minsel'khoz /Ministry of Agriculture/ of the Uzbek SSR on the whole, there was a deficit of 75.8 million rubles for 68 carry-over construction projects, the estimated cost of which was 1 million rubles or higher (planned period for their completion -- 1981) and at the same time 37 new large-scale construction projects were included at an estimated cost of 82 million rubles.

In a number of instances the normative periods for the duration of construction are not being observed and the practice of changing the title list indicators initially approved for the period of construction has not been eliminated. For example, the work concerned with the machine irrigation of land at the Solizhonabad Sovkhoz in Ferganskaya Oblast commenced in June 1977 and the plans called for this work to be completed in late 1978. However, by 1981 this work had been completed by only 67 percent.

At Board of Directors No. 15 of the Minvodkhoz system in Syrdar'inskaya Oblast, the schedules for the duration of construction on 104 projects were disrupted in 1980. In 1977, work commenced on a dairy complex for 12,000 cows at the Leningrad Sovkhoz in Kashkadar'inskaya Oblast and the facility was to have been placed in operation in 1979. However, its construction has still not been completed. With a balance in the estimated limit of 1.72 million rubles for 1981, only 350,000 rubles worth of capital investments were made available. If such a volume of capital investments is continued, then the construction of the complex will continue for another 4-5 years.

The dispersion of capital investment funds among numerous projects, failure to observe the construction schedules for individual construction projects and non-fulfillment of the plan for contractual work and for placing fixed capital in operation have produced a greater volume of unfinished construction work at many construction projects of the republic's Minvodkhoz and Minzel'khoz. In the case of Minvodkhoz, the amount of unfinished construction decreased by 50 million rubles during 1980. However, it is still high and by 1981 it amounted to 71 percent of the overall volume of capital investments allocated for the year. At sovkhozes of Minsel'khoz, it equalled 54.2 percent. By 1 October 1981, the amount of unfinished construction had increased even more.

Shortcomings also exist in connection with the planning of projects. The unsuitability of construction work and the aging of plans lead to unproductive expenditures. For example, such unproductive expenditures amounted to 80,000 rubles at the Board of Directors No. 11 in Samarkandskaya Oblast. At Board of Directors No. 5 in Bukharskaya Oblast, 246,000 rubles expended for planning-research work for construction that was nevery carried out were written off. Expenditures of 322,000 rubles for 59 plans were written off and 35 more plans valued at 313,000 rubles for the Fergana Inter-kolkhoz Council were prepared for writing off.

Planning-estimates documentation is not being prepared in a timely manner. In the case of Board of Directors No. 15 in Syrdar'inskaya Oblast, the plan for capital construction for last year included 8 projects at an estimated cost of 1.82 million rubles; however, the planning-estimates documentation was never prepared for these projects.

Incidents are still being encountered of reductions taking place in the output-capital ratio owing to delays in placing projects in operation and incomplete development of production capabilities, in keeping with the established schedules. Such facts were uncovered at a mill of the Shurchi Grain Products Combine in Surkhandar'inskaya Oblast. As a result, 30,000 tons of grain went unprocessed during 1980 and the 1st quarter of 1981.

The construction of large-scale livestock complexes and poultry factories made it possible to increase the average annual production of meat during the 1976-1980 period by 31 percent above the figure for the previous five-year plan, milk -- by 42 percent and eggs -- by 65 percent. However, there are still many unused reserves here. At times, the planned capabilities of the livestock complexes are being developed in an unsatisfactory manner and this lowers the effectiveness of the capital investments being allocated for their construction. This applies in particular to complexes for the fattening of large-horned cattle and hogs. For example, in 1980, owing to insufficient animals, the beef production capability of the livestock complexes, for Uzglavzagotzhivprom on the whole, was utilized to only 86.2 percent and this led to a considerable shortfall in output.

Shortcomings also exist in the financing of capital construction. The accounts with contractors for the carrying out of work hamper operations and delays take place in acquiring financing for capital construction. For example, at the combined board of directors for the construction of enterprises for Minsel'khoz in Syrdar'inskaya Oblast, for a planned capital investment volume for 1981 of 8.07 million rubles, the financing for four construction projects for 1.51 million rubles had still not been formulated by 15 April of this year.

The internal resources of enterprises and organizations of the rural and water economies are not always utilized for financing capital investments in the amounts called for in a plan. The reason -- non-fulfillment by individual enterprises and organizations of the profit plan and weak control over the ministries and departments. In 1980, Minvodkhoz failed to receive 23.9 million rubles worth of these resources (compared to the plan), Minsel'khoz -- 7 million, Goskomvodstroy -- 2.3 million rubles. During the first three quarters of 1981, 37.8 million rubles, 14.4 million and 4.4 million rubles respectively of such resources were not placed in operation. In some instances, as revealed by an inspection, the organizations did not provide Gosbank in a timely manner with the 10-day loan charges called for in the instruction. The Turtkul' SMU /Construction and Installation Administration/ Trust of Yugkarakalpakvodstroy, for example, paid its first loan charge on 31 March 1981 and the Zadar'inskaya PMK /Mobile Mechanized Column/ of the Namanganirstroy Trust -- only by 14 May.

The capital investments are not being financed fully by means of the mobilization of internal resources as called for in the plan. The tasks for lowering the amounts of uninstalled equipment and materials, in connection with the untimely placing in operation of individual projects, are not being fulfilled and this is raising serious difficulties in the financing of capital construction.

The economic effectiveness of construction is greatly dependent upon the activities of the construction organizations and the rational use of production capabilities. Meanwhile, a number of contractual organizations engaged in erecting projects for the rural and water economies are not fulfilling their plans for construction-installation work. The reason -- poor use of equipment, manpower and so forth. In 1980, for Goskomvodstroy for the Uzbek SSR, the output norms for excavators were underfulfilled by such trusts as Syrdar'yarisstroy -- by 21.1 percent, Uzparfinvodstroy -- by 15 percent, Samarkandsovkhozvodstroy -- by 9.9 percent and for Minvodkhoz for scrapers and excavators -- eight trusts and administrations, for bulldozers -- seven. The underfulfillment of output norms is strongly influenced by above-plan equipment idle time caused by extended repair work, low coefficient for shift work and so forth. The required front of work is not always being carried out on schedule. It was for these reasons that a number of construction organizations did not fulfill their tasks for the timely use of their construction equipment.

Not all of the construction organizations are employing their manpower in the best possible manner. Entire shift idle time is considerable: in 1980, it amounted to 57,300 man-days in Minvodkhoz, an amount equivalent to the absence from work throughout the year of 230 individuals. Personnel turnover is high and incidents of shirking and other violations of labor discipline are rampant. Personnel turnover is especially great in the Samarkandsovkhozvodstroy and Tashkentvodstroy Trusts and also at Goskomvodstroy for the Uzbek SSR. As a result of this and also entire shift idle time, 7.5 million rubles worth of additiona construction output was not produced during 1980.

Owing to shortcomings in the use of equipment and manpower at individual construction organizations, the plan for labor productivity was not fulfilled. From January to August 1981, this plan was under-fulfilled by 11 subunits of Goskomvodstroy and four of Minvodkhoz. The rates of growth in average wages at a number of contractual organizations exceeded the rates of growth in lagor productivity.

At some construction projects, a rise in production costs for construction-installation work is taking place owing to over-expenditures of material values and monetary funds, unproductive losses and unplanned expenditures. Excess funds are being spent at these construction projects for eliminating waste and carrying out repair work and materials are being written off over and above the established norms and for unfinished work volumes. Such incidents have been uncovered at the Fergana PMK of the Ferganairstroy Trust, the Babatagskiy PMK of the Surkhangidrostroy Trust of the republic's Minvodkhoz and others.

Another reason for the rise in production costs for operations -- excessive wage payments. For example, at the Syrdar'inskaya PMK of the Syrdar'yavodstroy Trust, excess wages amounting to 12,000 rubles were paid out in 1980 owing to maintenance of the administrative apparatus by means of the workers' wage fund. Inspections have exposed unsound payment of wages owing to additional payments being made for overtime work and the maintenance of a sumernumerary administrative apparatus at the Kyzyrykskiy PMK of the Surkhangifrostroy Trust, the Tselinstroy PMK of the Karakalpakvodstroy Trust and others.

Some organizations are not fulfilling their profit plans owing to growth in the production costs for construction-installation work. For Minvodkhoz on the whole, this plan was underfulfilled in 1980 by 8 percent and for Goskomvodstroy -- by 22 percent.

During 8 months of 1981, as a result of measures undertaken, Minvodkhoz and Goskomvodstroy on the whole fulfilled their profit plans and yet not all of their organizations and enterprises succeeded in coping with this plan.

The republic's financial organs are attaching great importance to the effectiveness of use of the resources being allocated to agriculture for capital investments. In 1980, at nine boards of directors and seven contractual organizations, a check was carried out on the correctness of applying expenditures for unfinished construction at aquicultural organizations, after which Minvodkhoz for the Uzbek SSR was assigned the task of correcting the existing shortcomings. A study was also undertaken of the reasons for failing to use internal funds for the financing of capital investments at 11 organizations of this ministry.

In addition, a check was also carried out on the effectiveness of use of capital investments at six boards of directors and inter-kolkhoz councils of Minvodkhoz. The results of the check were reported to the Council of Ministers for the Uzbek SSR, which required the ministry to improve the planning of capital construction, to prevent the dispersion of funds among numerous projects and to concentrate them on underway construction projects and to undertake measures aimed at reducing the volume of unfinished construction. Appropriate control was established over the elimination of shortcomings.

However, there are still many shortcomings and derelictions. Thus the republic's financial organs intensified their control considerably during 1981. They carried out checks on fulfillment of the tasks for lowering costs at 14 contractual organizations of Minvodkhoz. At 14 sovkhozes and 14 other organizations of Minsel'khoz, controls were implemented over the carrying out of measures aimed at reducing the number of newly begun construction projects and providing the appropriations required for ensuring the timely completion of underway projects. At eight boards of directors and 16 other organizations of Minvodkhoz, a check was carried out on the correctness and effectiveness of use of state capital investments allocated for the irrigation of land. The results of these checks were reported to the republic's government. Checks were also carried out on capital construction at six enterprises of the Minzag /Ministry of Procurements/ system for the Uzbek SSR and at 25 enterprises of the republic's Goskomsel'khoztekhnika. In all instances, the necessary measures were undertaken for achieving more effective use of capital investments.

During a ceremonial meeting held in Tashkent, dedicated to awarding the Order of Lenin to the Uzbek SSR, Comrade L.I. Brezhnev made the comment that during the next few years both the republic and the country as a whole must achieve higher goals in a number of decisive areas associated with economic and social development.

Guided by the decisions handed down during the 26th CPSU Congress and the 20th Congress of the Communist Party of Uzbekistan and the instructions issued by L.I. Brezhnev, the republic's Ministry of Finance has developed measures for intensifying control over the financial and economic activities of sovkhozes and other agricultural enterprises and organizations.

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AGRO-ECONOMICS AND ORGANIZATION

IMPROVEMENT IN KOLKHOZ PRODUCTION PLANNING IN UKRAINE

Moscow PLANOVOYE KHOZYAYSTVO in Russian No 5, Jun 82 pp 109-113

/Article by V. Kuznyak, candidate of economic sciences: "Improvement in Planning of Kolkhoz Production"/

/Text/ In the decisions handed down during the 26th CPSU Congress, it was noted that a requirement exists in agriculture for "dynamic development and growth in the effectiveness of all branches, increased production and improved output quality"*. This requires considerable improvement in planning work at all levels in the administration of agricultural production and particularly in connection with strengthening agricultural specialization, which is opening up broad opportunities for raising the effectiveness of production.

One condition for improving planning is that of utilizing the entire system of economic laws of socialism, among which an important place is occupied by the law of planned, proportional development of the national economy. The proportions between all branches of agriculture are established based upon this development.

Great importance is being attached to achieving an optimum proportion between field crop husbandry and livestock production. This is particularly important in view of the fact that a disproportion has been observed over an extended period of time between the number of livestock and the volume of feed produced and between the amount of feed and the balance in terms of protein and other components. Thus, in conformity with the scientifically sound norms for the feeding of livestock, feed consumption per standard head of large-horned cattle is 33-35 quintals and for a dairy cow -- not less than 40 quintals of feed units. In recent years the actual consumption of feed per standard head in the public sector of the country was 7-8 quintals of feed units less, including in the Ukrainian SSR -- 5-7 quintals less.

The absence of an adequate amount of feed extends the raising and fattening periods for the livestock and results in an overexpenditure of feed per unit of weight increase. Thus, during the intensive fattening of large-horned cattle the weight of an animal over a period of 16-18 months increases by roughly 400 kilograms, whereas 1.5-2 times more time and feed are required in order to achieve this under a program of extensive fattening. It is only because of a lack of balance in the feed in terms of protein that feed consumption per unit of livestock output exceeds the norm for milk by 40-50 percent and for meat -- by 25-30 percent. A balance in the feed in terms of protein, in keeping with the modern level for feed production, can raise the productivity of the animals considerably and increase the production of goods by 35-40 percent, with a simultaneous reduction in production costs of 15-20 percent.

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* Materials of the 26th CPSU Congress. Moscow, Politizdat, 1981, p 164.

It is our opinion that the principal cause of the disparity between the number of animals and the feed base is the fact that the higher planning organs plan an increase in the number of animals for the kolkhozes and sovkhozes, despite the absence of the required feed base. And indeed growth in the number of animals does not always increase the production of goods. For example, during the 1977-1979 period the number of cows at kolkhozes in the Ukrainian SSR increased by 4.1 percent, large-horned cattle -- by 2.7 and hogs -- by 5 percent; however, milk production decreased by 4.8 percent, meat -- by 5.8, including pork -- by 10.4 percent.

In the decree of the CC CPSU and the USSR Council of Ministers entitled "On Improvements in Planning and Intensifying the Effect of the Economic Mechanism With Regard To Raising Production Efficiency and the Quality of Work" (1979), emphasis is placed upon the fact that the most important direction to be followed for improving all planning work is that of selecting the most effective methods for achieving high final national economic results. This was the thrust of the decree of the CC CPSU and the USSR Council of Ministers entitled "On Improving Planning and the Economic Stimulation of Production and Procurements of Agricultural Products" (1980). The final result of the development of livestock production is an increase in the volume of livestock products and not growth in the number of animals, which is justified only when there is an appropriate feed base available. In the absence of such a base, a considerable portion of the feed is expended for maintaining the animals; the productivity of the animals declines, feed consumption per unit of output increases and an increase takes place in the production costs.

The state plan for agricultural product procurements is the foundation for the production plans of kolkhozes. In the last of the above-mentioned decrees, emphasis is placed upon the fact that the observance, in the various areas, of the established order for planning state procurements serves to guarantee the development of long-range plans for increased specialization.

The data furnished in the table provides some idea as to the trends in the distribution of procurement plans for products among kolkhozes in the Ukrainian SSR.

The table reveals a gradual reduction in the number of kolkhozes for which a state plan has been approved for the principal types of marketable products. Compared to 1967, when 98.3 percent of the kolkhozes had tasks for selling grain to the state, in 1980 -- 95.9 percent; for sugar beets the figures are [illegible] and 63.1 respectively and for potatoes -- 98.7 and 66.6 percent. Such a trend is also being observed for other types of products. However the overall quantity of products being procured is increasing. Thus, during the Tenth Five-Year Plan the state grain procurements at kolkhozes throughout the republic increased by a factor of 1.3 above that for the Seventh Five-Year Plan, sugar beets -- by a factor of 1.5, potatoes -- by almost 2, milk -- by 1.9, meat -- by 2 and eggs -- by a factor of 3.5. This was the result of increased production specialization and concentration. But not all of the republic's oblasts and rayons are basing their plans for output sales on the feasibility of increased specialization.

At times, in actual practice, the procurement plans established for kolkhozes by the planning organs of a rayon are directed towards the multi-branch management of a farm, with the task calling for 20-25 or more types of marketable products. Quite often a multi-branch type of production is maintained even on spetskhozes /specialized farms/ and this adversely affects the development of the principal branch, since considerable resources are diverted from it for the other branches. This inhibits the concentration of effort on developing the principal branch and it lowers the overall effectiveness of production operations.

The state procurement plans for such grain crops as rye, barley, beans, buckwheat and millet are being made available to almost all of the oblasts, rayons and kolkhozes proportional to the sowing areas, despite the fact that experience has been accumulated at various kolkhozes in obtaining high yields for the various crops. In addition, the splitting up of the plantings complicates the mastering of ration crop rotation plans, since it becomes necessary to grow crops having different growing seasons on the same field. Thus we consider it advisable to differentiate the tasks for the kolkhozes with regard to the sale of agricultural crops.

Up until recently, for example, when establishing a plan for procurements a differentiation was carried out for buckwheat and millet only from the standpoint of oblasts and rayons throughout the republic. In the process, upon receiving the plan the oblast would make it available to all of the rayons and the latter -- to all of the kolkhozes. As a result, in a number of oblasts (Dnepropetrovskaya, Volynskaya, L'vovskaya and others) there was an average of 7-10 tons of marketable buckwheat per kolkhoz, for the production of which 7-9 hectares of sowing were adequate. Thus such crops are becoming of secondary importance to a kolkhoz, with all of the attendant consequences. This thus explains to a considerable degree the partial non-fulfillment of the state plans for groat crop procurements.

In recent years the trend has been to reduce the sowings of buckwheat. To a certain degree, this has resulted from the fact that it is less productive compared to other crops and thus an increase in its sowings lowers the overall cropping power of the grain crops. And the level of farm management and the material motivation of kolkhoz members are determined mainly on the basis of the cropping power achieved on the farms. Thus the organs of statistics, in our opinion, should remove buckwheat from the grain crop structure and in this manner it will not detract from the overall level for the cropping power of the grain crops. For example, in 1978 the cropping power for grain crops on farms in the Ukrainian SSR was 30.3 quintals per hectare and buckwheat -- 9.7 quintals per hectare.

A similar situation is developing in the case of potatoes and vegetables. In the case of their production, more complete use should be made of the available potential for intensifying production specialization and concentration. If a farm specializes in the production of potatoes or vegetables, they become the chief marketable products for the farm and this raises its responsibility for carrying out the state task.

Production specialization and concentration are creating more favorable conditions for the procurement organizations, for whom it is easier to coordinate their work with a fewer number of supplier-kolkhozes and to determine which products and in what amounts should be supplied by a particular farm. However, this is not meant to imply that if a farm specializes for example in the production of vegetables that tasks must be established for it for all types as is done quite often. The analysis carried out reveals that the same types of vegetables have different cropping powers at different kolkhozes. This is the result of both natural and economic conditions and also of greater or less experience in the raising of the crops. Thus, when composing the state plans, consideration should be given to those particular circumstances which will fully ensure that the vegetable crops are concentrated at those farms where the conditions for their cultivation are most favorable. A concentration of vegetable sowings at individual farms leads to a more rational use of the land -- the chief resource for agricultural production -- and it ensures stable production and the fulfillment of the state plans for marketable output.

It is known that the gross yield must exceed the state plan for procurements. However, a market is not always found for the vegetables grown by kolkhozes. As a result, large quantities of them are wasted or used for livestock feed. In some rayons and on some farms, the volume of vegetables fed to the livestock amounts to 30-40 percent of the crop, despite the fact that the state plans for procurements are not fulfilled. Such use of vegetables not only reduces the country's vegetable balance, but it also leads to an increase in the production costs for the livestock products. One quintal of vegetables contains only 6-16 feed units, whereas 1 quintal of corn grain -- 134 feed units. Moreover, 3-4 times more labor is expended for the production of 1 quintal of vegetables than for 1 quintal of corn. In 1978, the production cost for 1 quintal of corn at kolkhozes throughout the republic amounted to 5.32 rubles and for vegetables -- 8.87 rubles. Thus 1 feed unit of vegetables cost the kolkhozes 82 kopecks and that for corn -- 4 kopecks.

"The campaign against losses" wrote L.I. Brezhnev, "is today considered to be one of the chief reserves in agriculture. It is completely obvious that considerably less effort and funds are required for realizing savings in products already produced than that which is required to initially produce the goods"*. Excessively great losses lead to a situation wherein an increase in the production of goods is not always accompanied by growth in its consumption. For example, during the 1976-1979 period the average annual volume of vegetable production increased by 27.1 percent above the figure for 1971-1975 and state procurements -- by 40 percent.

Analysis reveals that the level of consumption can be raised considerably by reducing losses and the unproductive use of the products. But, in addition to other measures, this requires improvements in planning the movement of the products from the producer to the consumer and the creation of a single and integrated system for programmed-special purpose control over agriculture. The state procurements should be aimed at fully satisfying the requirements of the Soviet people for each type of food goods, despite the long and complicated path it must follow from the producer to the consumer.

During the October (1980) Plenum of the CC CPSU, L.I. Brezhnev pointed out the need for "bringing together those problems concerned with the development of agriculture and its service branches of industry, procurements, storage, the transporting and processing of agricultural products and the questions concerned with development of the food industry and the food goods trade. This agroindustrial and food complex must be planned, financed and controlled as an integrated whole, thus ensuring high final results"**. The decree entitled "On Improving Planning and the Economic Stimulation of Production and Procurements of Agricultural Products" stipulates that the procurement organizations are responsible for organizing procurements and ensuring the continuous acceptance of all products presented by the farms.

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* L.I. Brezhnev. "Tselina." /The Virgin Land/. Moscow, Politizdat, 1978, p 72

** L.I. Brezhnev. Speech delivered before the Plenum of the CC CPSU on 21 October 1980. Moscow, Politizdat, 1980, p 7.

Commencing in 1981, tasks for the acceptance and delivery of products directly on the farms were approved for the procurement organizations, kolkhozes, sovkhozes and other agricultural enterprises and associations. Such direct contacts are making it possible to establish direct relationships between the producers and the procurement specialists and to define more specificially the delivery conditions and the responsibilities of the parties involved. In addition, they are raising the operational efficiency of the procurement organizations, reducing the path the products have to travel and thereby lowering transport expenses, product losses are decreasing, the quality of the products is improving and improved control over quantity is being achieved.

The efforts aimed at improving the planning for kolkhoz production are being held back somewhat by violations of the system adopted back in 1955 for planning kolkhoz production, according to which the kolkhozes were to be given tasks only for selling products to the state. However, we are still encountering situations in the various areas wherein the kolkhozes are being provided not only with product procurement plans but also with the dimensions of the sowing areas, cropping powers the numbers and productivity of the livestock, the schedules for carrying out particular operations and other tasks. As a result of this, the kolkhozes are being deprived to a considerable degree of the opportunity for independently planning their own production.

During the October (1980) Plenum of the CC CPSU, L.I. Brezhnev commented upon on intolerable circumstance "the petty support and administration being provided by the leaders and specialists of kolkhozes and sovkhozes"*. In the decree "On Improving Planning and the Economic Stimulation of Production and Procurements of Agricultural Products," it is pointed out that the production volume for agricultural products, the size and structure of the sowing areas, the number of livestock, the cropping power of the crops and productivity of the livestock, the production technology and organization and other indicators of agricultural development are developed on the farms themselves. In the process, extensive use must be made of the specialists, kolkhoz members and workers and also the representatives of social organizations and consideration must be given to the local conditions, leading experience, the recommendations of scientific-research institutes and also to the need for fulfilling the plans for the state procurements of agricultural products and satisfying internal requirements.

However, a tendency is being observed in a number of rayons to provide the kolkhozes, in addition to a plan for state procurements, with other indicators as well. The impression is being created that people are working on the kolkhozes who are not sufficiently versed in agriculture. Meanwhile, on 1 April 1980, there were almost 4 chief specialists, two agronomists, a zootechnician and four engineers and technicians on the average for every kolkhoz in the country. Higher and secondary specialized educations are held by 96.6 percent of the chief specialists, 96.7 percent of the agronomists, 94.6 percent of the zootechnicians, 66.5 percent of the engineers and technicians, 96 percent of the kolkhoz chairmen and 87 percent of their deputies.

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* L.I. Brezhnev. Speech delivered before the Plenum of the CC CPSU on 21 October 1980, p 7.

The kolkhozes are large-scale producers of agricultural products for whom it is profitable to sell their products in large batches.

Providing the kolkhozes with independence in solving the principal production problems is an important condition for raising the efficiency of kolkhoz production. The participation in its planning of the kolkhoz specialists and the kolkhoz members themselves makes it possible not only to take into account the peculiarities of each farm but also to mobilize the masses for carrying out the established tasks.

The experience of kolkhoz production testifies to the fact that in those areas where the accepted order for farm planning is not violated, better use is made of the land, specialization is more successful and high economic indicators are achieved. An example of this is the Kolkhoz imeni XXII S"yezda KPSS in Yampol'skiy Rayon in Vinnitskaya Oblast, where 45-50 quintals of grain and 450-500 quintals of sugar beets are obtained per hectare annually. Even during 1979, a year marked by unfavorable weather conditions, the kolkhoz obtained 426 quintals of sugar beets per hectare. The farm's net income exceeds 2 million rubles. Another example -- the Bil'shovits'ka Pratsya Kolkhoz in Karlovskiy Rayon in Poltavskaya Oblast. Here the average annual cropping power for grain crops during the Tenth Five-Year Plan was 40.7 quintals and sugar beets -- 539 quintals per hectare, or 8.7 and 157 quintals higher respectively than at other kolkhozes in the rayon.

Those kolkhozes where the kolkhoz members consider themselves to be full and equal masters of their work and participate in solving all of the production problems, are not only achieving high production indicators but in addition they are fulfilling and over-fulfilling the state tasks for the sale of products. This is explained to a considerable degree by the fact that the production-financial plans at such farms are developed on the basis of thorough economic analysis of the successes achieved in past years and upon use of the available production reserves. Extensive use is being made of the balance method of planning, which requires detailed development of the appropriate norms for the utilization of material, financial and labor resources. The producers participate actively in the work of preparing the plans and the plans are discussed in the production subunits (in brigades and on farms) and at general meetings of the kolkhoz members. Such plans derive organically from the specific production conditions, they are aimed at raising production efficiency and they are truly scientific in nature.

Planning undergoes definite qualitative changes. It orients kolkhoz production towards the final results as dictated by the needs of society. Moreover, the state and the corresponding planning organs retain the right to correct the kolkhoz plans if they do not ensure fulfillment of the state order.

Included among the shortcomings associated with the planning of agricultural production is the absence of economically sound coordination of the state procurement plans from a territorial and departmental standpoint. The state procurement plans are distributed by the planning organs and the logistical resources are planned by the corresponding departments, at the disposal of which are the agricultural enterprises. One reason why a considerable number of farms are failing to fulfill their plans for selling products to the state is the lack of a sufficient balance between the procurement volumes and the plans for logistical supply.

Proportion of Kolkhozes With Whom Contracts Were Concluded for the Sale of Agricultural Products, Compared To the Overall Number of Kolkhozes in the Ukrainian SSR, (in %)

Type of Product	Dynamics By Years		
	1967	1972	1980
Grain crops	98.3	97.2	95.9
Sunflowers	55.6	50.8	51.3
Sugar beets	75.0	67.4	63.1
Potatoes	98.7	86.1	66.6
Vegetables	97.3	94.2	79.7
Milk	98.9	97.9	96.8
Meat:			
large-horned cattle	100.0	99.0	96.4
hogs	94.9	92.5	69.4
sheep	68.2	66.3	38.4
poultry	67.2	60.1	36.5
Eggs	75.4	70.9	58.9
Wool	79.2	73.9	51.3

Whereas the state enterprises are provided, on a centralized basis, not only with the output sales plans but also with the material resources required for fulfilling them, the kolkhozes are only provided with the tasks for selling the appropriate types of products to the state. With regard to the logistical support for a plan, it is not arranged for each farm separately but rather it is developed for the country's agriculture on the whole and from a republic standpoint. The material resources allocated for the republic's agriculture (machines, mineral fertilizers, feed and so forth) are distributed among the farms based not upon their production requirements, but rather upon the existing potential. This leads to a situation wherein the necessary coordination is often lacking at kolkhozes between the state procurement plan for agricultural output and the logistical support required for it.

While the state procurement plans have the force of law for the kolkhozes and their implementation is mandatory, the state organizations responsible for supplying the kolkhozes with logistical resources do not always carry out their orders. This places the kolkhozes in a difficult and unequal situation. In the decree entitled "On Improving Planning and the Economic Stimulation of Production and Procurement of Agricultural Products," emphasis is placed upon the need for ensuring in the five-year and annual plans for agricultural development a proper balance between the production volumes and state product procurements on the one hand and the available and allocated logistical and financial resources, fixed productive capital and capital investment volumes on the other.

The relationships between the kolkhozes and state enterprises, not only in connection with the procurements of agricultural products but also in carrying out the kolkhoz requests for the required logistical resources and services, must be developed on a cost accounting basis. This ensures equality between the enterprises and it raises their mutual responsibility for the fulfillment of contracts and, it follows, the state plans. Such conditions promote a balanced development for those industrial enterprises engaged in producing the means of production required for agriculture, for enterprises which utilize agricultural raw materials and for agricultural enterprises which are guaranteed a market for their products and the delivery in the planned volumes of industrial means of production. This is one of the conditions for harmonious development of the national economy.

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TILLING AND CROPPING TECHNOLOGY

IRRIGATION OF SPRING WHEAT IN LOWER VOLGA AREA

Saratov STEPNYYE PROSTORY in Russian No 7, Jul 81 pp 20-22

/Article by I.P. Kruzhilin, candidate of agricultural sciences and head of the Department of Agricultural Land Reclamation and A.G. Bolotin, assistant, Volgograd Agricultural Institute: "Spring Wheat Under Irrigation"/

/Text/ The chief grain crops for irrigated crop rotation plans in the Lower Volga area are winter and spring wheat. However their productivity, and particularly that of spring wheat, continues to remain low. On the average for the 1976-1980 period, approximately 2.17 tons of grain of this crop were obtained from each irrigated hectare in Volgogradskaya Oblast. Low cropping power has become one of the reasons for the reduction in its plantings. In 1977, for example, spring wheat was grown on 4,540 hectares and in 1980 -- on 1,220 hectares, or on less than 1 percent of the oblast's regularly irrigated arable land. By no means does this conform to the norms set forth in the plans for the utilization of irrigated areas. A disruption in the scientifically sound alternation of agricultural crops in a crop rotation plan lowers the effectiveness of irrigation on the whole.

We have been assigned the task of developing the basic principles for optimizing the water and nutritional regimes for the soil, in the interest of obtaining a grain cropping power on the order of 3, 4, 5, 6 and 7 tons per hectare. Studies were carried out on an irrigated tract at the Gornaya Polyana Training Farm of the Volgograd Agricultural Institute, using the Kal'yan Sona short-stalk intensive variety of spring wheat in various soil variants according to the water regime:

1. Without irrigation (control).

2. Using foliar waterings to maintain the moisture content of the active soil layer at no lower than 70 percent of the NV /minimum moisture capacity/

3. Maintaining a differentiated regime for the moisture content of the soil in accordance with the plan 70-80-70% NV. During the period of the greatest water requirement for the plants, from shooting to the end of waxy ripeness in the grain, foliar waterings are used for a soil moisture content of no lower than 80% NV. During the remaining period of growth, the pre-irrigation threshold for the moisture content of the soil dropped to 70% of the NV.

4. Use of foliar waterings when the moisture content of the active layer of soil is 80% of NV.

In order to obtain the planned yields, the requirements of the crop for the principal elements of nutrition -- nitrogen, phosphorus and potassium -- were determined using the computational method. The full norm of phosphorus and potassium and 70 percent of the nitrogen were applied during fall plowing. The remaining amount of nitrogen, in the form of a top dressing and in various dosages, was applied during the tillering and blossoming phases of the plants. The sowing was carried out following winter wheat as the predecessor crop, following a bed of alfalfa, with three sowing norms -- 3.5, 5.5 and 7.5 million germinative seed per hectare.

The principal and pre-sowing cultivation of the soil consisted of two-stage post-harvest removal of stubble using stubble plow disk harrows to a depth of 10-12 centimeters with an interval of 2 weeks time. The fall plowing was carried out using a plow with a skim coulter to a depth of 25-27 centimeters. Cover harrowing was carried out in the spring and also pre-sowing cultivation to a depth of 6-8 centimeters in combination with harrows. The sowing was carried out using an SZ-3.6 sowing machine and the row method, with inter-row spacings of 15 centimeters and seed placement at a depth of 5-7 centimeters. Post-sowing packing was carried out using ring rollers.

The wheat was watered using a DDA-100MA sprinkling unit and norms of 450 cubic meters per hectare for a pre-watering threshold for moisture content in the active soil layer of 80% NV and 650 cubic meters per hectare -- for 70% NV.

The weather conditions varied during the years in which the studies were carried out. In 1978, the total amount of precipitation which fell during the spring wheat growing season amounted to 140 millimeters which corresponds to a year of 16% availability, in 1979 it corresponded to 75% availability and amounted to 63 millimeters in 1980 -- 84 percent and 51 millimeters. Depending upon the existing weather conditions, in order to maintain the moisture content in the active soil layer during the second variant, it was necessary to carry out from 3 to 4 foliar waterings during the years of the studies at a norm of 650 cubic meters per hectare, for the third variant -- 4-6 waterings at a norm of 450-650 cubic meters per hectare and in the fourth -- 5-7 waterings at a norm of 450 cubic meters per hectare each. In the process, the total amount of water consumption on the average for the three year period and by variants of the experiment turned out to be: 80% NV -- 4,330, 70-80-70% NV -- 4,150 and 70% NV -- 3,900 cubic meters per hectare. The portion of irrigation water in the total amount of water consumption by the crop was respectively 53-73, 45-70 and 44-66%. Maximum average daily water consumption was observed during the period from stem extension to heading and on the average for the three years and by variants of the experiment it changed as follows: 80% NV -- 66, 70-80-70% NV -- 63 and 70% NV -- 60 cubic meters per hectare daily. The minimum average daily consumption of moisture was observed during the sowing to seedling period and by variants of the soil's water regime and on the average for the 3 years it equalled 11 cubic meters per hectare daily.

In analyzing the effect of various factors on the cropping power of spring wheat, combinations were determined which make it possible to obtain the planned quantity of grain. A cropping power on the order of 3.0 tons per hectare can be achieved by carrying out waterings even in the absence of mineral fertilizers. The schedules for carrying out these waterings must be such that the soil is not allowed to dry out lower than 70% NV, or a differentiated moisture regime should be ensured in accordance with the plan for 70-80-70% NV. The sowing norm, when maintaining a soil moisture content regime no lower than 70% NV should be increased to 7.5 million seed per hectare, whereas with a differentiated regime for moisture it can be accepted at the level of 5.5 million seed per hectare. A cropping power level of 4.0 tons per hectare is ensured by maintaining the soil moisture content not lower than 80% NV and without the use of mineral fertilizers. The combination of an application of $N_{120}P_{45}K_{45}$ with an acceptable reduction in the moisture content in the active soil layer not lower than 70 or 70-80-70% NV makes it possible to obtain the same yield with a more thrifty consumption of water. Owing to the use of fertilizers, the total amount of water consumption for the formation of roughly the same cropping power decreases from 4,330 to 3,900 cubic meters per hectare. A grain cropping power of 5 tons per hectare in our experiments was achieved by various combinations of the soil moisture regimes with the acceptable pre-watering thresholds for moisture content of 70, 70-80-70 and 80 percent NV, the sowing norm and an application of mineral fertilizer from $N_{120}P_{45}K_{45}$ to $N_{180}P_{75}K_{75}$.

The possibility was also established, with acceptable deviations from the planned level, of obtaining 6-7 tons of grain per hectare. A cropping power of 6 tons per hectare can be achieved through waterings applied to a dried out active soil layer throughout the entire growing season or only during the period of maximum water consumption by the plants, from their tube extensiion to the end of the phase of milky ripeness in the grain, but no lower than 80% NV. Against a background of a differentiated regime for soil moisture content, a planned yield can be obtained through the use of raised fertilizer norms -- $N_{210}P_{90}K_{90}$ or a norm for the sowing of 7.5 million germinative seed per hectare. A grain cropping power of 7 tons per hectare was not obtained during the studies. On the average for the 3 year period, it changed with a deviation on the order of 15-18% lower than that planned. When developing a technology for achieving a cropping power level of 6-7 tons per hectare, a moisture content in the active soil layer of lower than 80% NV throughout the entire growing season should not be tolerated. The norm for the application of mineral fertilizers must be increased to $N_{180}P_{75}K_{75}$ or $N_{210}P_{90}K_{90}$ and for sowing -- up to 7.5 million germinative seed per hectare.

Thus the use of a scientifically sound technology for cultivating intensive varieties of spring wheat of the Kal'yan Sona type and strict observance of the soil water regime will ensure a grain cropping power capable of competing against the productivity of winter wheat.

We attempted to establish principles for the growth and development of the plants in connection with changing weather conditions. It was established that a definite total amount of active temperatures was required in order to convert over from one phase of development to another. For example, in order to obtain spring wheat seedlings, a total amount of active temperatures equal to 202-227° Centigrade is required. Throughout the growing season, from sowing to complete ripeness of the grain, the requirement for heat throughout the years of the study fluctuated from 1851 to 2026° Centigrade, amounting to an average of 1949° Centigrade for the 3 years. Knowledge of the principles underlying the growth and development of spring wheat and consideration of the weather forecast for a month, decade or pentad make it possible to conjecture regarding the rates of development for the plants and, even more important, to optimize a combination of factors in order to obtain a planned yield of grain. Special importance is attached here to developing methods for controlling the water regime in soil which will be acceptable for practical purposes. The proposed method for controlling the water regime in soil is based

Estimate of Total Amount of Water Consumption and the Irrigation Regime for Spring Wheat for Cropping Power Level of 5-7 Tons Per Hectare for 1980

Indicators	Inter-Phase Periods								
	Sowing - seedlings	Seedlings - Tillering	Tillering - shooting	Shooting - heading	Heading - blossom	Blossom - milky ripeness	Milky - waxy ripeness	Waxy to full ripeness	Sowing t full ripeness
Total amount of air temperatures, ^{o}C	216	319	168	288	190	228	186	344	1938
Atmospheric precipitation, in mm	12	-	10	4	3	3	4	15	51
Coefficient of evaporation Kt, mm/^{o}C	0.777	0.214	0.275	0.338	0.289	0.248	0.199	0.151	0.221
Total amount of water consumption, mm	16.6	68.3	46.2	97.3	54.9	56.5	37.0	51.9	42.87
Moisture supplies used lower than computed layer, mm	-	-	-	5	10	10	10	5	40
Deficit water balance, mm	4.6	68.3	36.2	88.3	41.9	43.5	23.0	31.9	337.7
Deficit water balance in an increasing total, mm	4.6	72.9	109.1	197.4	239.3	282.8	305.8	337.7	-
Predicted periods and norms for watering	$\frac{15.05}{450}$	$\frac{26.05}{450}$	$\frac{4.06}{450}$	$\frac{12.06}{450}$	$\frac{21.06}{450}$	$\frac{1.07}{450}$	$\frac{14.07}{450}$		

upon forecasting the plant development phases and establishing the water requirements for any of the periods under review, using bioclimatic coefficients of evaporation. Using this method for the 1980 growing season, we composed programs for controlling the soil water regime for spring wheat sowings at the Gornaya Polyana Training Farm and at the Krasnyy Oktyabr' Sovkhoz, programs in which the deficit in soil moisture was determined using the formula:

$$C\ B = K_t\ t - P - B,$$

where C B is the forecast of the total deficit water balance for the period under review, in mm;

Kt is the average temperature coefficient for moisture consumption during the predicted period, in mm/^{o}C;

t is the predicted total amount of temperatures for the period under review, ^{o}C;

P is the predicted total amount of precipitation for this same period, in mm;

B is the possible use of soil moisture by the plants from layers deeper than the active layer, in mm.

Upon achieving the total amount of water balance deficit for the computed watering norm, the soil moisture supplies should be augmented by means waterings. Their distribution in time during the growing season for spring wheat made it possible to determine, for 1980, the program for the crop irrigation regime, at the rate of 75% support for the year. The soil moisture deficits are determined for any inter-phase period using the mentioned formula. A program must be composed for determining the operational irrigation regimes.

In addition to a forecasting program for each forthcoming month in the growing season for spring wheat, in accordance with a long-term weather forecast, a correcting program for the carrying out of waterings was composed. In view of the insufficient reliability of a monthly weather forecast, an operational-current program for controlling the water regime of the soil was composed based upon five-day weather forecasts. The periods for carrying out waterings in accordance with this program were determined based upon the predicted total amount of temperatures and the expected amount of precipitation.

In 1980, for the purpose of maintaining an optimum supply of water for the spring wheat plants throughout the entire growing season, it was necessary to carry out seven foliar waterings in accordance with the forecasting program, six in accordance with the correcting program and seven foliar waterings in accordance with the operational-current program. The number of waterings called for based upon the actual moisture supplies in the soil during the growing season was seven. The deviations in the number of waterings from the correctional program are explained by the absence of reliable monthly weather forecasts. The number of waterings predicted in accordance with the operational-current program and those called for based upon the actual moisture content in the active soil layer were the same. The schedules for carrying out the waterings differed only negligibly. The greatest deviation in the actual watering periods called for based upon soil moisture content and those called for in the operational-current program amounted to 2 days. For example, the first watering in accordance with the operational-current program was scheduled to be carried out on 18 May and it was actually delivered on 20 May, the fourth watering -- 17 June and 19 June respectively, the fifth -- 24 June and 26 June and the sixth -- 4 July and 6 July. The predicted periods for other waterings either coincided or deviated by no more than 1 day from the actual schedules for carrying them out.

The use of the method described for controlling a soil water regime makes it possible to maintain the moisture content in the active soil layer at the established level for the planned cropping power, with sufficient accuracy for practical purposes.

The results of the studies permit us to draw the following conclusions.

The combining of the optimum watering periods, those which ensure control over the moisture content in the soil within the assigned limits, with the computed norms for fertilizers and the sowing of seed, make it possible under the conditions found in Volgogradskaya Oblast to obtain a grain cropping power for the Kal'yan Sona intensive variety of spring wheat on the order of 3.0-6.0 tons per hectare.

The established bioclimatic coefficients in the form of modules for moisture consumption per 1°C and also the total amount of active temperatures required for converting over from one phase of spring wheat development to the next are making it possible to utilize them for forecasting the rates of development for plants, the establishment of dynamics for the total amount of evaporation and the water balance deficit, with subsequent determination of the watering schedules.

The use of the established principles, taking into account a weather forecast for the period under consideration, ensures the possibility of composing correctional and operational-current programs for controlling a soil water regime and for forming the planned cropping power for spring wheat grain.

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FERTILIZATION FOR SPRING WHEAT FOLLOWING VARIOUS PREDECESSOR ARRANGEMENTS

Sverdlovsk URAL'SKIYE NIVY in Russian No 12, Dec 81 pp 34-36

/Article by B. Sobyanin, deputy director for scientific work at the Shadrinsk Agricultural Experimental Station at the Zavety Lenina Kolkhoz: "Fertilization for Spring Wheat Following Various Predecessors"/

/Text/ A peculiarity of this present stage in the use of chemical processes lies in the fact that an increasing portion of the field crop husbandry output is being produced not as a result of natural soil fertility but rather owing to the use of chemical agents and particularly mineral fertilizers.

The effectiveness of mineral fertilizers increases within a crop rotation system, since in such instances the total effect of the preceding crop and the fertilizers applied is brought to bear and more complete use is made of their residual effect. This is of considerable importance under our conditions, since quite often a summer drought prevents the plants from making full use of the fertilizer during the year in which it was applied and thus good use is made of their residual effect.

With regard to the farms in Shadrinskiy Rayon in Kurganskaya Oblast, they are supplied with so little mineral fertilizer that it is hardly worth discussing a system of fertilization. For example, in 1980 there were only 21.9 kilograms of nitrogen and 25.2 kilograms of P_2O_5 per hectare of grain crop sowing and in 1981 the figures were even less. In such situations the mineral fertilizer should be utilized in a manner so as to produce the greatest return.

When planning the fertilizer dosages and structure, consideration must be given first of all to ensuring that the plants are supplied with nutrients; for the northwestern part of Kurganskaya Oblast this consists mainly of nitrate nitrogen. If we are discussing fertilizer for spring wheat, then the predecessor crop will play an important role with regard to ensuring the presence of nitrogen in the soil.

When sowing spring wheat following clean fallow, the one-half meter layer of soil contains 55-65 kilograms of nitrogen nitrates per hectare, rarely -- 100 kilograms per hectare. But fallow improves only the nitrogen nutrition regime and for all practical purposes does not change either the phosphorus or potassium regimes. Thus the fallow must be fertilized. An additional application of phosphorus is needed more here than on other fields in a crop rotation plan.

A high nitrogen content, even in the absence of fertilizers, makes it possible to obtain yields on the order of 18-29 quintals per hectare (see Table 1) following

Table 1

Yields and Increases in Spring Wheat Following Clean Fallow
(quintals per hectare)

Variant of Experiment	Year of Observation				Average	Kg. of grain per kg. of fertilizer
	1967	1968	1969	1970		
Without fertilizers	11.9	17.8	29.1	25.0	20.9	-
P_{40} in the spring	2.3	2.9	1.4	2.9	2.4	6.0
P_{40} in the autumn	2.7	2.3	1.2	2.8	2.3	5.8
P_{60} in the spring	4.0	3.0	2.4	5.5	3.8	6.3
P_{60} in the autumn	4.4	2.7	1.1	6.8	3.8	6.3
P_{80} in the autumn	3.8	2.3	1.2	7.0	3.6	4.5
$N_{30}P_{40}$	2.5	1.5	0.2	5.6	2.5	3.6
$N_{30}P_{40}K_{30}$	3.4	3.8	2.6	8.3	4.6	4.6
P% =	4.5	2.8	2.4	3.8	-	-
3E quintals per hectare =	1.98	1.68	2.18	3.45	-	-

fallow. In 1967 the wheat was severely contaminated initially by leaf rust and thereafter by stalk rust and this greatly lowered the wheat yields.

Clean fallow, even if it is viewed only from the standpoint of mineral nourishment and its positive role in accumulating moisture and in combating weeds is not taken into account, is still necessary as a real source for improving the nitrogen regime for plant nutrition in a crop rotation plan.

Thus an application of phosphorus raises a spring wheat yield substantially by producing an average increase of 2.3-3.8 quintals per hectare. The combination of nitrogen and phosphorus does not change the amount of yield compared to an application of only phosphorus, but at the same time it promotes lodging of the crops during some years (1968-1969). Complete mineral fertilizer possessed an advantage over an application of phosphorus in 1970 when the difference in yield was substantial. At the same time, the return from the fertilizer is decreasing. When phosphorus was used alone, 6 kilograms of grain were obtained per kilogram of active agent and when NPK was employed -- only 4.6 kilograms.

An application of phosphorus ensures a net income of 21 rubles and 24 kopecks per hectare (in a dosage of 60 kilograms of P_2O_5 per hectare) and a profitability of 181 percent.

The addition of nitrogen lowers these indicators. An application of nitrogen following clean fallow is undesirable in the sense that it delays the growth of the plants, whereas following fallow and compared to other predecessor arrangements, the plants in the absence of fertilizer grow for a longer period of time owing to a good supply of nitrogen. Conversely, an application of phosphorus curtails the growing period.

Phosphorus fertilizers can be applied to clean fallow in advance, at the end of the fallowing period (in August). This does not change the effectiveness of the phosphorus and at the same time it makes it possible to utilize the fertilizer obtained by a farm during the summer period and in this manner to reduce the requirement for storehouse facilities in which to store the fertilizer.

Following peas, the soil contains 30-50 kilograms of nitrogen and this ensures a spring wheat yield in the absence of fertilizer of 15-30 quintals per hectare. Here the nitrogen and phosphorus content in the soil is more balanced than that following clean fallow. Thus a two-stage application of phosphorus or nitrogen does not raise a wheat yield.

The effectiveness of the fertilizers was strongly affected by plant contamination by stalk rust in 1967 and by early frosts (16 August) in 1970. A higher increase in yield was obtained from complete mineral fertilizer -- 4.9 quintals per hectare or 4.5 kilograms of grain per kilogram of active fertilizer agent. The profitability of fertilizer usage was 126 percent. The effectiveness of the fertilizers compared to other predecessor crops was low. In the event of a shortage of fertilizer, these plantings do not necessarily have to be fertilized. If fertilizer is available, then it is best to apply complete mineral fertilizer.

Corn leaves only a very negligible amount of nitrate nitrogen in the soil -- 12-25 quintals per hectare. This is explained by the low yields of wheat compared to other predecessor crops.

The effectiveness of fertilizers following corn is high. Thus in 1966 the greatest increase from fertilizers amounted to 7 quintals per hectare (a yield increase of 66 percent), in 1969 -- 9 quintals per hectare, a growth of 56 percent and in 1970 -- 10.1 quintals per hectare, an increase in cropping power of 56 percent (see Table 2).

Table 2

Yields and Increase in Spring Wheat Following Corn, quintals per hectare

Variant of experiment	Year of observations, yields					Average increase	Kg. of grain per kg. of active fertilizer agent
	1966	1967	1968	1969	1970		
Without fertilizers	10.7	13.3	18.1	16.0	18.1	15.2	-
P_{40}	-0.1	0.2	2.3	0.6	1.6	1.0	2.2
P_{60}	0.5	0.6	0.4	1.6	1.9	1.0	1.7
N_{40}	6.0	2.4	0.7	6.8	7.8	4.8	12.0
$N_{40}P_{40}$	7.0	4.2	4.0	7.6	10.2	6.6	8.2
$N_{40}P_{60}$	7.1	3.7	6.2	9.0	10.1	7.3	7.3
P% =	10.6	3.6	3.1	4.4	4.1	-	-
3E quintals per hectare =	4.47	1.62	1.89	2.70	2.88	-	-

Following unfertilized corn, the availability of both nitrogen and phosphorus are both inadequate for wheat plantings. However, the yield is determined to a great degree by the nitrogen. Over a period of 5 years, the phosphorus fertilizers furnished an average increase of 1 quintal per hectare and only in 1968 was there a reliable increase. Thus it is unwise to use only phosphorus fertilizer in behalf of wheat grown following corn.

Over the five-year period, nitrogen fertilizers increased the yields by an average of 4.8 quintals per hectare. Hence, in the fact of a phosphorus fertilizer shortage, wheat plantings can be fertilized using only nitrogen. This serves to ensure an average yield on the order of 20 quintals per hectare, a high profitability in the use of fertilizers (394 percent) and a high grain yield per kilogram of active agent (12 kilograms).

The effectiveness increases with a joint application of nitrogen and phosphorus (average grain yield -- 21.8 quintals per hectare), but compared to nitrogen alone decreases occur somewhat in profitability (253 percent) and grain yield per kilogram of active agent -- 8.2 kilograms.

An increase in the proportion of phosphorus in the fertilizers for all practical purposes does not produce an increase in yield and it lowers the profitability and grain yield per kilogram of active fertilizer agent. Thus wheat grown following unfertilized corn responds well to fertilizers, provided the fertilizer structure does not include nitrogen. Moreover, an application of nitrogen alone possesses an advantage in terms of profitability and grain yield per kilogram of active agent and a joint application of nitrogen and phosphorus -- in terms of net income per hectare of planting and yield. The fertilizer dosage in this instance is selected depending upon the tasks assigned and the availability of fertilizers on a farm.

Consequently, in connection with a high culture of farming and the extensive use of fertilizers out on the fields, the role played by a predecessor crop in raising a wheat yield continues to be considerable just as in the past. Fertilizers do not eliminate the effect of a predecessor crop, but to the contrary they make it possible to utilize fully their positive aspects.

The use of mineral fertilizers on chernozem soils in the Trans-Urals region, even in relatively low dosages, is economically profitable. It ensures a high profitability and it creates conditions for obtaining a grain cropping power on the order of 24-26 quintals per hectare.

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